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AND

COUNTRY GENTLEMAN.

A CHRONICLE OF THE HOMESTEAD, POULTRY-YARD, APIARY, & DOVECOTE.

CONDUCTED BY

GEORGE W. JOHNSON, F.R.H.S., AND ROBERT HOGG, LL.D.

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TO OUR READERS.

(*From an unpublished work.*)

"George, how many years have you driven 'The Success?'"

"More than twenty, my Lady."

"Are you not tired of the occupation?"

"Not a bit, my Lady. You see, Robert is always about the coach, and when I and my little woman want a holiday, he takes the ribbons. There is no end of change in coaching. Although we never turn off the old horses, and we drive steadily, yet they die off, and then we have to draft in new sound ones. Then opposition coaches start, and it 's pleasant to see how they sometimes are trying to run before us, and sometimes running behind us."

"But, George, they must take some passengers from you."

"I daresay they do sometimes, my Lady, but we never miss 'em, for we are always full, thank God, and the old passengers come back after a time, and say they are sorry they ever left us. Sometimes a new start, to make a show, takes passengers for nothing; but that, my Lady, you know, wo'n't fill the corn bin."

"Your horses, George, go as well as ever?"

"Yes, my Lady, they are a well-bred lot, and plenty of 'em; and they know who handles 'em; and we give 'em a few beans occasionally, and the passengers know 'em and pat 'em, and horses like that. Why, my Lady, some of 'em have been leaders ever since the coach started, and go over their ground as fresh as the first day they put their shoulders to the collar. Everyone says how fresh and gay 'old Bob' and the 'Kentish Cob' are still. Wonderful horses they are. And the young uns, my Lady, how steadily they keep the pace! Why, the box is as easy as an armchair. Neither Robert nor I ever used the whip since we mounted that box. Besides, my Lady, the team has travelled so long together, that they are used to one another, and Robert and I made up our minds years ago never willingly to change 'em so long as we held the ribbons of 'The Success.'"

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WEEKLY CALENDAR.

Day of Month	Day of Week	JANUARY 4—10, 1872.	Average Temperature near London. Day.	Night.	Mean.	Rain in 43 years. Days.	Sun Rises. m. h.	Sun Sets. m. h.	Moon Rises. m. h.	Moon Sets. m. h.	Moon's Age. Days.	Clock before Sun. m. s.	Day of Year.
4	Th		42.2	28.6	35.4	17	8 af 8	3 af 4	17 af 0	19 af 6	23	5 1	4
5	F		41.4	27.3	34.4	16	8 8	3 4	33 1	6 7	24	5 28	5
6	S	EPIPHANY.	41.1	28.6	34.8	14	7 8	4 4	56 2	57 7	25	5 55	6
7	Sun	1 SUNDAY AFTER EPIPHANY.	41.7	29.1	35.4	17	7 8	6 4	19 4	52 8	26	6 22	7
8	M	PLOUGH MONDAY.	41.0	30.1	35.5	14	7 8	7 4	45 5	51 9	27	6 47	8
9	Tu		41.2	30.8	36.0	15	6 8	9 4	6 7	56 10	28	7 13	9
10	W		42.0	30.3	36.1	18	6 8	10 4	15 8	after.	●	7 38	10

From observations taken near London during forty-three years, the average day temperature of the week is 41.5°; and its night temperature 29.2°. The greatest heat was 54°, on the 7th, 1845, and 9th, 1852; and the lowest cold 11° below zero, on the 4th, 1867. The greatest fall of rain was 1.00 inch.

THE NEW YEAR'S PROMISE.

DID you ever through an open door overhear a little child saying its lessons? I do not mean one so far grown as to be dignified with the name of boy or girl, but a child, a little child, a trusting, fully-confiding little thing, such as the Great Master took on His knee and declared that "of such was the kingdom of heaven"—one that as yet its mother could not on any account allow any other one to teach; and as to its lessons they are but half play, a little verse or two, a merry running rhyme which is repeated and acted as well. Now, if through an open door, or window, you, unseen, have overheard such a little one so doing, you have stood, and paused, and listened with delight unfeigned to the silvery voice so new, so clear, so young, and you have thought, What a sweet beginning of life! No child this cuffed by cruel hands; no dirty, ragged, gutter-child, but all that should be. What a sweet beginning of life! what a fair promise of a bright and happy future! Now such-like is the beginning of this year, not as last year, with war near us. No cruel siege of a great city, no starvation within of woman and child, but all pleasant, all promising; peace at home and abroad; the nation's love roused to the nation's Sovereign and her son; the old English Oak shown to be sound at heart still, the old hereditary instincts true as ever, and the national heart still human and humane. The year opens with all Englishmen having felt and feared together, and so now bound closer together. The new year comes to us, and it seems to give a fair promise of happiness, and like the little child's voice, it is young, and new, and sweet. What it may prove none can know until its end, but this we may say, it promises well.

Now let me note some current or recently current matters which bear, or have borne, upon us as readers of "our Journal." There is said to be a tendency in this age for wealth to become centred in a comparatively few, and, on the contrary, the many to become very poor, so that rich men will grow richer, and poor men poorer. Of many sources of wealth I will not speak; but of one, the old source—land, I will speak briefly. Thirty years ago, and further back, the poor man had a better chance, because commons were not enclosed, and each resident had "a common right." In the part of England I lived in when a boy (the fens of Cambridgeshire), commons were according to their name, common in number and in character, and on them the poor man could graze his flock of geese, and let his sow and her pigs take their run. Commons are now things of the past, and the poor man is a loser. This should be remembered by those who have landed property; and if the best of the poor are to be kept either from emigration or from removing to large towns, land must be attached to each cottage. In Edward IV.'s reign no cottage was without its four acres, and in Elizabeth's reign no cottage had less than a rood of land attached to it. The owners of land are doing well, occupiers are doing well, for if a farm be vacant there are a dozen who want it. I speak of my own neighbourhood, where it is impossible to get a farm unless by interest or favour of some kind, and often have I been asked for a recommendation.

This being so with owners and occupiers, I want to see the deserving among the lower class favoured with a few acres here and there, and a good garden always, and the land not let at what is called "accommodation price." These are times when much is done, in sickness especially, for the poor; but charity lowers self-respect, and is apt to injure, whereas help a man to help himself, and you benefit his purse and his character too. Of one pleasant day connected with benefit to the poor which I spent last year I must briefly prattle.

The late Prince Consort founded an association for improving the condition of labourers and others living in Windsor and twelve surrounding parishes. It helps in this way: Prizes of £1, £2, or £3 to the labourer, or artisan, or his wife who has brought up a family in sober, honest, and industrious habits, without parish relief, except in cases of sickness; also to the widows of such. Prizes of a similar kind to families distinguished for cleanliness and tidiness of house and person; also to well-conducted servants who have lived longest in the same place. To young persons who have kept their first place of service for the longest period (not less than three years). Prizes, too, to the best cultivators of the gardens and allotments, being persons of honest, sober, and good moral character. Prizes, also, for exhibitors of the best collection of vegetables, or the best specimen of needlework, cottage handicraft, and economy. Now, it so chanced that I was invited by one who takes great delight in "our Journal," and reads its pages every week, to be present last July at the annual meeting of this Society, held in the Home Park, Windsor. No pleasanter and more truly joyous scene can be imagined. The Home Park, which lies just beneath the grand old Castle and its terrace, was opened to all. Crowds of healthy Berkshire labourers, their wives and daughters, were present; crowds, too, of ladies and gentlemen, military uniforms, so Windsor-like, and music and tents filled with flowers and fruits, and works of needle, and knife, and tool. Right pleasant was it to see the prizetakers—226 in all—receive the rewards of their good conduct, thrift, or skill from the hands of one of our Princesses, who graciously stepped down from the platform on which she stood, when an old woman of eighty-three and another of seventy-seven received prizes for their needlework, so thoughtfully sparing their tottering steps. Then there were three huge Guardsmen who received prizes for their—mark it!—needlework—bedcovers and patchwork tablecovers! When I saw all this, princes, nobles, clergy, military men, all busy and happy with doing good to the poor, I had two thoughts—one, Such things make England strong; the other, Why should not such associations be in every neighbourhood?

There is also another matter connected with conferring benefit on the poor which I must mention. I have noticed during the year the Children's Flower Show at

the Victoria Docks, and Mr. R. Fish followed soon after with an admirable article entitled "Importance of an Interest in Gardening and Natural History to the Young." If that paper happened to escape the eye of anyone interested in the improvement of children, let me state that Mr. Fish's remarks are to be found in the number of our Journal for July 27th.

But yet the other matter I was alluding to, I mean another scheme for the good of poor children. It seems that Mr. Ruskin, England's great art critic, who has shown in his writing how marvellously pliant and powerful is the English language, has given a small space of ground for a play-place. Our forefathers would have called it a pleystow, or plestor, *locus ludorum*, for the poor children in one of the densely-peopled parts of London. It is but a small space, but when it had been cleared of rubbish in came the London children and, with as keen enjoyment as our rural ones, mounted the seasaws, and held on at the swings; and we are told that gradually the tone of the children was improved; the manners, bad indeed at first, grew better. The presence of ladies among them began to tell. Miss Hill says, "We took them flowers, acorns, seaweed, pictures, beads, all marvellous new things to be seen and handed round. We taught them games, and they played them. Many an hour have I spent teaching them to make daisy-chains, or to thread beads. Our ground was in one of the worst courts of the neighbourhood, and the dirtiest, wildest children flocked in without restriction. Now, gradually, instead of destroying all that comes in their way, they actually delight to watch and water our five trees which we have planted, and our creepers. The civilising influence has partly been from the fact that the children are withdrawn from the terrible influence of the streets and courts, and partly from the fact that they are gradually placed amongst pretty things that want care." Miss Hill goes on to state that they have one annual gathering, on May-day, and a Maypole, and many friends are there to meet about four hundred children.

Here, surely, is a blessed work. Here are "sweetness and light" for poor things brought up in the midst of filthiness and darkness. Would that there were many such playgrounds scattered over London. The Parks are too far for many. Children must play. John Wesley, good man as he was, made yet a great mistake in his arranging each hour's work for each day in his institution for children, and yet not to allow a play hour. This may be excused in him, for he was a childless man. Children must play. Last summer I saw ragged urchins playing horses in St. James's Park, and if such have no wholesome play they become precocious, impish, little things, looking upon all people as their natural enemies, full of thief's slang, mocking in gesture, and filthy in converse. Whence all the wild ideas of the Communists? from the fact of their working all their days in town workshops, shut out from the pure air of heaven, and from the sight of tree and flower. If we cannot take the town children to play in the country, then the next best thing is to provide, as Mr. Ruskin has, play-places for them in the town. He has done a patriotic act, and a christian act as well.

As to gardeners and gardening, and I hope gardeners are prospering, man's first trade is among his best still, so far as enjoyment goes, if there be in a gardener a true and loyal love for his profession. I have sometimes thought when passing through show tents of beautiful flowers, and fruit, and vegetables, that there is a higher aspect in regard to taking prizes, which is, perhaps, too often forgotten. Not alone is there a wholesome rivalry, not alone do prizes keep men up to the mark, and striving beyond their present mark, but think of the patience needed to obtain a prize. Think of the care and forethought, as well as pains and patience; and all these improve and raise a man's character. Look at that prize flower; it grew not like the Buttercups, without any tending. Look at those Grapes, amazing in size of bunch and berry, and rich and beautiful in colour. Think of the hours out of bed in the cold frosty nights that the gardener had, and the skill he has shown, and if shown, the skill he is possessed of. In regard to prize birds it is the same. No idle, no unskilled man takes the cup and the money. What patience a breeder has! what management in crossing! what disappointments, often at the produce being so different to what was hoped for!

Now, all this patience, &c., is good for people; their minds are thus benefited and disciplined. Besides, how such things keep evil thoughts out of mind, and evil feelings out of the heart! The unoccupied man whose mind and heart are fallow is the one most open to evil. Then, also, if care, and pains, and skill not always issue in success, let the unsuccessful remember that a law of compensation runs through Nature. I often have seen this in my beautiful Elms in the park near me. I love to see their giant arms stretching out at right angles to their trunks. How noble they are! how handsome they make the trees! but they grow heavier and heavier, and some windy day in full leaf the great outstretched arms fall to the ground, and the tree stands a maimed giant. But a few years and tufts shoot around the great scar on the stem, and a few more years and graceful branchlets have grown out, and the tree is again beautiful. This law of compensation runs through Nature, and an honest man, even having failed, finds yet a blessing follows in some unlooked-for way, perhaps.

In regard to reports of poultry shows, I think an unreasoning and unreasonable complaint is often made about their not entering enough into details. But it is after all a narrow subject; the field is not large, and extraneous matters, special, perhaps, to the place where the show is held, being introduced can alone make variety and make an article readable, and what is not readable is not worth the cost of printer's ink.

An objection I remember was once made—indeed, more than once, against those writers who prefer using a *nom de plume* instead of their patronymic, and we were told that we were ashamed of our names. "Not a bit of it," say I. At the same time I think this, that it would be well that a writer should adopt a designation which gives an idea, if not of who he is, yet of what position he holds. Hence, I object to mere initials, which do not even give the sex of the writer. Those who receive numerous letters from strangers frequently get some from those who only sign with the initial letter of their christian names. These are sadly puzzling. Thus, I receive a letter in a good bold hand stating that the writer will call upon me, and this letter, say, bears the signature, "J. Smith." Is it John Smith or Julia Smith? "that's the question." Is it to be a study guest or a drawing-room one? Then, suppose the letter requests an answer, is it to be addressed John Smith, Esq., or Mrs. Smith, or Miss Smith? The handwriting alone is not sufficient, for now ladies write so much like gentlemen, only, not unfrequently, much better. So, I think, initial writing is always wrong, private or public. Ladies are the greatest offenders in letters; so if a woman is named Susannah or Kerenhappuch, I hope she will write it in full—it is her godmother's fault, not hers, that she was not named Edith, or Ada, or Ethel, or like angel-sounding names. So I venture to hope, that if any lady or gentleman is burning to attack or praise me in these columns, they will not adopt merely initials. Of course, those who have long written under initials it is too late to mend. Yet if "Y. B. A. Z." had written under "Country Surgeon," we should have attached great weight to any remedy he had proposed for fowl-disorders.

Something has during last year been said about poultry prizes for the working classes. I hope the subject will not wholly drop out of sight. As a life-long pigeon-fancier let me notice, that as Antwerps, the real working homing Carrier, have come to the front, and taken a place at our shows, and people have delighted to gaze upon a pen of birds with a notice on their pen of their performances, so I think the other real bird of the air, as wonderful for his performances in the air as the Antwerp, will also come to the front, and appear at our shows—I mean the high-flying Tumbler; his aërial gymnastics are marvellous, and he is as worthy a bird as the Antwerp. I should like to see cages of such birds shown, good in feather and form, with truthful accounts of the hours they have flown. I believe in Birmingham an effort is being made in this direction, and pretty and useful birds under the name of Rosewings, Redbreasts, Whitesides, &c., have been exhibited; but as I have never seen any of them I cannot speak from personal observation. Probably the Muffs will be reduced to mere grouse-feathering, and the Tumbler form, in its dapperness, be attained—better still if the legs were quite clean. The clear coral legs and feet, as also the pearl eye, best suit the pretty Tumbler form. May, then, flying Tumblers, most interesting birds as they are, become more general favourites.

Another kind of show is growing in popularity—I mean Cat shows; and lo! it is discovered that not ladies, maiden ladies only, but some gentlemen love and admire cats! Who knows but, as the cat is becoming an animal of points and properties, that choice breeds will be kept in aviary-like buildings, and anxious visitors will appear, asking for permission to visit "feliaries?" Well, poor puss has had many a stone thrown at her, and it is fair there should be a turn in her favour. She

has mourned for generations over countless litters of drowned kittens, and grudgingly allowed one live one; perhaps whole litters will gambol about her in the future, and gratify her motherly instincts. Who can tell? A cat helps to make a home; and a wise man said, "A servant is not worth having until she talks of our cat." Pigeon-fancier and ignorant blackguard used to be associated ideas with some people, yet how untrue that association would now be.

A man of great intellect, though I cannot agree with one of his books, Mr. Darwin, was thus spoken of in the *Saturday Review* of last March: "When Mr. Darwin was pursuing his inquiries into the origin of species he was known to one class of mankind simply as a pigeon-fancier. They supposed, it may be, that his ambition was limited by that which formed its more immediate goal, the production of a pigeon with a beak a tenth of an inch longer (!) than its ancestors, or with rather a more brilliant iris on its neck (!)" It is quite clear that the reviewer is no pigeon-fancier, but utterly pigeon-ignorant. Still, when men of Mr. Darwin's calibre delight in fancy pigeons, it shows there is much in them to cause intellectual pleasure. A modern authoress, of whose mental powers no one doubts, Mary Russel Milford, thus writes to Miss Barrett, afterwards Mrs. Browning, "I love to see my tame pigeons feed at the window, and the saucy hen tap at the glass if the casement be shut. She likes to come in and to sit on the innermost ledge of the window-sill, and listen and turn her pretty top-knotted head to this side and that while I talk to her. This pleasure I owe to you, having taken to the home-loving domestic pigeons as a rustic imitation of your doves, and they blend well with my flowery garden." Thus we have the author of "Julian" and "Rienzi" loving pigeons, and Mrs. Browning, the most learned of modern ladies delights in keeping doves. But go further back to another woman, a great historic character, Mary Queen of Scots; in a letter dated 1574, she writes to friends abroad, "I beg you procure me pigeons, red partridges, and hens from Barbary. I intend to endeavour to rear them in this country, or to feed them in cages, as I do all the small birds I can come by—a pastime for a prisoner." Thus how far diffused is a love of pet birds, and how much pleasure they afford! We of this Journal help to foster these gentle tastes. No advertisement on our pages reads like this—"Fox-terrier pups, bred to murder." Cruel-sounding, certainly.

And now to draw near to a conclusion. The past year saw one of our staff pass away, one whom even the soft air of Devon could not keep in life—I mean Mr. Woodbury. I knew him not in person; his hobby is not mine; but I read enough of what he wrote to know that he was an able and a kindly man. Peace to his memory! May the honey bee he loved so well make its solemn music over his grave!

The New Year promises well. May it fulfil all its promise to all who write or who read our pages. I know of some who not only read but long for the next number to read on. May our bark float this year in smooth waters, with a bright sun and a favouring breeze, and, whether to those on board or those who look on, may the new year be a healthy and a happy year, and more than fulfil its promise.—Wiltshire Rector.

PRUNING LATERALS.

By M. J. Van Hulle.

As a rule, pruning-time still falls within the months of February and March. In this article we would remind our readers that the winter, unless it be frosty, is by no means an unfavourable season for pruning, and experience has taught us that October or November is a more favourable time still for the purpose. In either of these cases the gardener will obtain at least one advantage, and that is his work will be considerably lessened in the spring, when, as everyone knows, gardeners have enough to do. By completing the pruning at this period the laceration of the trees at a season when the sap is beginning to flow, and which should not be inflicted unless they are in a very vigorous condition, is avoided.

But, whatever be the pruning-time, we would particularly advise persons in their passion for beauty, their regard for symmetry, or in their devotion to the rule which says "that the side branches should be pruned as short and as near the mother branch as possible," not to fall into the mistake of cutting the laterals, which either bear or promise to bear flower-buds, too short. He who scrupulously pays attention to the above-quoted advice, continues but too often to respect it for a number of years, when he finally attains his object; but on reflecting that this time has been spent in forming the framework of the trees, and that no fruit has been gathered in the intervals, he must confess that it has cost him dear. As for the Peach, in which the bearing-wood is the chief thing, there are reasons why it should be pruned a little shorter, but we, nevertheless, think that it is better not to push this practice too far. There is a greater probability of having fruit on a branch with from 8 to 10 inches of wood left untouched, than upon the same branch if shortened to the fourth or fifth bud lower down. The bearing-wood must not, however, be forgotten.

It is more especially in the case of the Pear that we would recommend that the laterals should not be pruned too short. Certainly these, if woody and too strong, ought to be cut to the base or well broken as far as the sixth or seventh bud, or still more—breaking to the second or third bud would only give rise again to undesirably strong shoots—but all the other branches, although they might not be "spurs," provided they resemble these up to a certain point, should be left untouched, be they 8 inches in length or even more. We are aware that it is a grave infringement of the rule, still it is really not only a question of shape, but also one of fruit. The unpruned laterals nearly always bear flower-buds at their ends, and as the branches must of necessity bend beneath the weight of the fruit arising from these, the consequence is that there will be fruit at the lower part much sooner on the "spurs"—spurs as fine as those of any tree treated on the short-pruning system. Once these spurs have come into being, they are sure to grow again.

Thus it is that the desired object is attained; in fact we secure the fruiting-wood very short and as nearly as possible in the condition for forming the framework, more surely and sooner by pruning the lateral long than by pruning it short; and with this noteworthy difference—that in the meanwhile a supply of fruit has not been wanting.—(*Cercle d'Arboriculture.*)

MADRESFIELD COURT GRAPE.

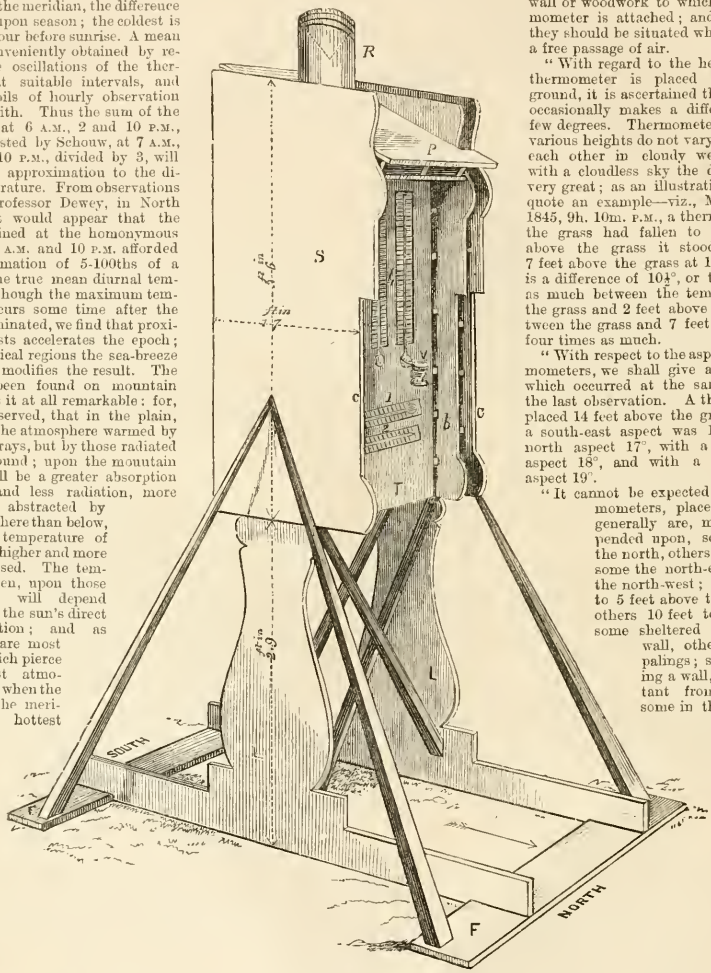
The following information may be useful to "J. W." I have not grown this Grape yet, but having seen it in very fine condition I obtained two plants of it, intending to grow it both in the early and late vineries. I am now assured that it is not at all adapted for late vineries, as it will not keep after Christmas. Indeed Mr. Stevens, of Trentham, exhibited excellent examples of it at South Kensington last year, and it was stated on his authority that it was not likely to keep after that date. I also saw it fine in Scotland in September last; but in a communication received from one of the best Grape-growers in that country, dated December 9th, the writer says, "Madresfield Court Grape has all gone rotten with me, and I find it is doing so elsewhere;" so I think we ought to be cautious how we plant it in late houses. That old variety, Gros Guillaume, better known as Barbarossa, is not so much grown as it ought to be for late work. It requires the temperature of the Muscat house. It is also a noble Grape in appearance, and superior to Lady Downe's in flavour. I grow it on its own roots, and it could not possibly do better. The true Black Alicante keeps well, and is also of superior flavour. Mr. Sage, of Ashridge, took the first prize with it at South Kensington on March 1st in the class for late Grapes, beating very superior examples of Lady Downe's. Mrs. Pince's Black Muscat even when well grown, generally colours badly, and is the first to show signs of shrivelling in the berries; it is, however, very distinct, and the flavour is very rich. The following black varieties are distinct and adapted for growing in late houses—Alicante and Gros Guillaume require the most heat. Mrs. Pince and Lady Downe's can be grown in a lower temperature, but they ought to be quite ripe by the first week in September. —J. Douglas.

THERMOMETRICAL OBSERVATIONS.

[The following will supply the information asked for by "W. M."]

Variations of temperature have many controlling causes, for, as observed by Dr. Thomson, the temperature is altered by an almost infinite number of circumstances; thus, altitude, latitude, longitude, horary and seasonal periods, the presence of aqueous meteors, winds, and the physical relations of the locality—even the aspect of the horizon—whether it is rugged

or unbroken by lofty eminences, the chemical nature and colour of the soil, influence the result. Subject, however, to numerous fluctuations, we, nevertheless, observe that there are two stated periods of the day when the temperature reaches a maximum and minimum. The warmest period is generally from two to three hours after the sun has passed the meridian, the difference depending upon season; the coldest is nearly an hour before sunrise. A mean may be conveniently obtained by recording the oscillations of the thermometer at suitable intervals, and thus the toils of hourly observation dispensed with. Thus the sum of the indications at 6 A.M., 2 and 10 P.M., or as suggested by Schouw, at 7 A.M., noon, and 10 P.M., divided by 3, will give a near approximation to the diurnal temperature. From observations made by Professor Dewey, in North America, it would appear that the result obtained at the homonymous hours of 10 A.M. and 10 P.M. afforded an approximation of 5-100ths of a degree to the true mean diurnal temperature. Though the maximum temperature occurs some time after the sun has culminated, we find that proximity to coasts accelerates the epoch; and in tropical regions the sea-breeze still farther modifies the result. The same has been found on mountain tops; nor is it at all remarkable: for, let it be observed, that in the plain, not only is the atmosphere warmed by direct solar rays, but by those radiated from the ground; upon the mountain top there will be a greater absorption of caloric and less radiation, more heat being abstracted by conduction there than below, where the temperature of the earth is higher and more equally diffused. The temperature, then, upon those lofty spots will depend chiefly upon the sun's direct calorific action; and as those rays are most powerful which pierce the thinnest atmosphere—*i.e.*, when the sun is on the meridian, the hottest period of the day will be at, or very soon after, culmination.—(*Elements of Meteorology.*)



To obtain accurate comparative observations and records of the maxima and minima temperatures daily, requires not only that the thermometers should be accurately and similarly graduated, but that they should be similarly exposed and similarly protected in every respect.

Mr. E. J. Lowe published some years since, in the "Gardeners' Magazine of Botany," the following judicious directions upon this subject:—

"Thermometers for comparison should all be placed at a certain height from the ground; they should all face the north (except those which are required to register the maximum temperature in the sunshine, which should face the south); they should not be influenced by radiated heat, by currents, by reflected heat, such as is communicated from an opposite wall, by absorption of heat from the wall or woodwork to which the thermometer is attached; and, in short, they should be situated where there is a free passage of air.

"With regard to the height that a thermometer is placed above the ground, it is ascertained that an inch occasionally makes a difference of a few degrees. Thermometers placed at various heights do not vary much from each other in cloudy weather; but with a cloudless sky the difference is very great; as an illustration we shall quote an example—viz., March 13th, 1845, 9h. 10m. P.M., a thermometer on the grass had fallen to 4.5°, 2 feet above the grass it stood 15°, and 7 feet above the grass at 18.5°. Here is a difference of 10½°, or three times as much between the temperature of the grass and 2 feet above it; and between the grass and 7 feet, of 14°, or four times as much.

"With respect to the aspect of thermometers, we shall give an instance which occurred at the same time as the last observation. A thermometer placed 14 feet above the ground, with a south-east aspect was 15°, with a north aspect 17°, with a north-east aspect 18°, and with a south-west aspect 19°.

"It cannot be expected that thermometers, placed as they generally are, may be depended upon, some facing the north, others the south; some the north-east, others the north-west; some 3 feet to 5 feet above the ground, others 10 feet to 20 feet; some sheltered by a high wall, others by low palings; some touching a wall, others distant from it; and some in the angle of a high building (cool as a cellar), and others exposed to the rays of the sun at one or other hour during the day.

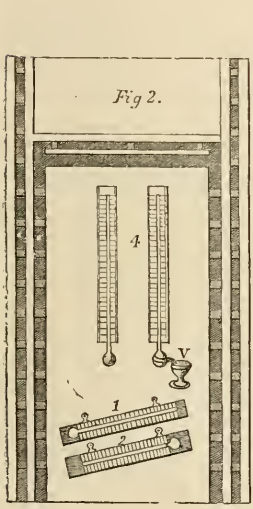
"'The Lawson Meteorological Thermometer Stand,' which we shall describe, is so arranged that it may be placed in any eligible situation; it commands a true north and south aspect; the instruments can be read off with the greatest facility, and they will be at a known distance from the ground; the instruments on the south face will have the meridian sun, and those on the north face will always be in the shade. The instrument is not costly, and were this stand universally adopted, observations, whether recorded here or at the antipodes, could

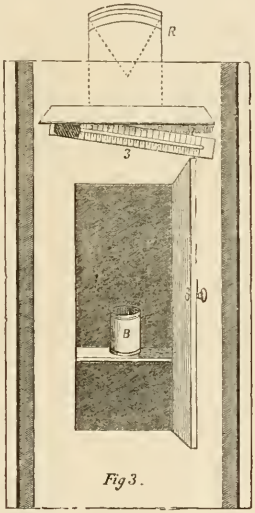
be compared with each other with far less chance of error than has hitherto been the case.

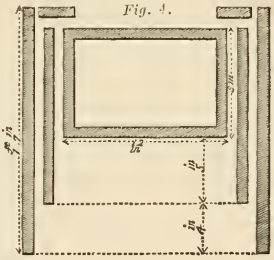
"*Fig.* 1 is a view of the stand. It is composed of white deal boards, and can be constructed by any carpenter. It consists of an oblong trunk T, 12 inches by 8 inches outside measure, to the opposite sides of which trunk are nailed boards, *b*, *b*, at the distance of three-quarters of an inch, and projecting about 6 inches from the trunk towards the north. Outside of these are nailed other thin boards, *c*, *c*, full half an inch distant, and projecting about 4 inches beyond the last-mentioned boards, also towards the north. These sides being thus multiple, prevent the sun from heating the interior of the stand, where the thermometers are placed. The top or pent-board, P, is made double, and the boards are placed fully three-quarters of an inch distant from each other, and come so forward as to overhang by a full inch. The legs, L, L, of the stand are merely the continuation of the sides of the trunk. The boards, or feet, F, F, are loaded or fixed to the ground to sustain the force of the wind. The interior, T, is blackened to prevent strong reflections of light.

"*Fig.* 4 is a ground plan, or bird's-eye view of the machine. The sides and woodwork generally are of three-quarter-inch white deal. The distance or space between the sides of the trunk, T (*fig.* 1), and the board or inner bide (*fig.* 4), is three-quarters of an inch; and the distance from that board to the outer side (*fig.* 4), is full half an inch. The narrow boards (*fig.* 4), are to be nailed, with studs intervening, to the middle board or side, and are for the purpose of preventing the sun from shining between the trunk and the sides of the stand, when near the meridian. The sides are fixed one upon another at the required distances—viz., three-quarters of an inch and half an inch, by numerous wooden studs, partially shown at *figs.* 1 and 2, about three-quarters of an inch diameter, and the screws passed through the sides and studs, fixing the whole firmly together. The whole is to be painted white, except the trunk T, which should be black.

"*Fig.* 2 is the view of the north side of the stand. No. 1 is an index thermometer to give the greatest cold of the night. The thermometer inclines, the ball end being the lowest, in order that the index, by being assisted by gravity, will move more easily. No. 2 is an index thermometer to show the greatest heat of the day; for the same reasons it is also placed on an incline, the ball being the highest. No. 4 are a pair of thermometers called the wet and dry-ball thermometers, to show the power of the air to evaporate water. V Is a vase or cistern of water for the wet-ball thermometer; it is placed on







the outside of the thermometer, to which a cotton wick is to be attached to connect it with the water, and at about the same elevation as the ball of the thermometer, in order that the evaporation from the vessel of water may not influence the thermometer on the other side, which is to be the dry-ball thermometer; for, in some careful experiments which I made with a vessel placed beneath the balls, it was found that the dry ball was lowered from 0.2° to 0.3°, which, though apparently a small error, is a serious amount in the main difference between the readings of the dry and wet-ball thermometers.

"*Fig.* 3 is the view of the south side of the stand. No. 3 is an index mercurial thermometer, with a black ball to give the greatest solar heat. R Is a rain gauge on Glaisher's construction; and B is a measure into which rain is to be poured for measurement."

For ascertaining the temperature of the soil at various depths, we recommend three tin tubes to be sunk in it in a place fully exposed to the sun, but far from a wall or other shelter; each tube to be about 2 inches in diameter, and of the respective depths of 2½ feet, 1½ foot, and 9 inches. These tubes should have in each a thermometer with the shank lengthened so as to correspond with the depth of the tube in which it is placed. These tubes should be covered over by a hand-light glazed only on the top to exclude rain from entering the tubes, but entirely open at the sides to allow of the free admission of the air. The thermometers should be well packed into the tubes with cotton to exclude the atmospheric temperature.

The importance of ascertaining for a certainty that the soil is of a temperature correctly relative to that of the air above it is demonstrated by the fact, that naturally its average temperature is always higher than that of the air. In other words, the roots on the average are kept warmer than the branches.

From observations made at Chiswick during six years (1833–1847), Mr. Robert Thompson gave the following epitome of results:—

"The hottest year as regards the temperature of the earth, 1846, afforded a mean temperature of 52.32° at 1 foot deep; and 52.85° at 2 feet deep. In the coldest year, 1845, the mean temperature at 1 foot deep was 48.95°; and at 2 feet deep 49.44°. The respective differences of the two thermometers in these hottest and coldest years were 3.37° at 1 foot

deep, and 3.41° at 2 feet. The mean temperature of the air was 51.45° in 1846, and 47.92° in 1845; the difference being 3.53°.

"On the average of the six years the earth is coldest in February, and warmest in July. The mean temperature of the air is also highest in July, but it is lowest in January. Throughout the months the gradations of temperature are not uniform. The monthly progression is as follows:—

"*Temperature increases.*

	Feb.	March.	April.	May.	June.	July.
1 foot deep....	(Lowest) 3.10°		5.01°	7.32°	7.65°	2.35°
2 feet deep....	(Lowest) 2.25		4.47	6.39	6.77	3.00
Air	0.23	4.39	5.20	7.04	8.04	1.99

"*Temperature decreases.*

	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
1 foot deep..	1.12°	4.02°	5.97°	5.59°	6.04°	1.62°	1.07°
2 feet deep..	0.42	2.91	5.30	5.65	5.20	0.95	1.45
Air	2.24	4.84	5.93	6.48	7.29	0.10	—

FORCING VEGETABLES.—No. 5.

THE CARROT.

Carrots must not be omitted from the list of the various sorts of vegetables that require forcing, as they are quite as much sought after in the spring for making-up certain dishes as any other vegetable sent to table. They are particularly sweet, and have a tender transparent flesh, with a flavour peculiar to themselves, so that it is surprising they are not more frequently cultivated. A crop of them can be easily grown by artificial means, since they do not require so much space as many other sorts of vegetables. A large crop can be produced under a two or three-light garden frame, and will last a considerable time, as it is not, like the Potato, an everyday vegetable. To grow them successfully a mild temperature only is required, consequently there is much less trouble in applying dung linings to keep-up the necessary temperature.

Unlike many other sorts of vegetables, the Carrot does not admit of being forced in a variety of ways. The old method practised for so many years has not been improved upon, nor do I think it ever can be. By it we are most certain of producing what is required as inexpensively as by any other plan. It is this: Make with dung or leaves, or both together, a hotbed of moderate thickness, and sweeten it in the usual way; select an open, airy position for the bed, and place the frame upon it when the heat begins to rise; if the weather be frosty at the time, cover the bed with 6 or 8 inches of soil, which should be moderately warmed, or else it will so diminish the heat as to prevent it rising again. I would advise that, after the frame is put on, sufficient manure be placed inside so as to bring the soil rather close to the glass; this soil should be of moderate richness and not too light. Be certain that the heat is not likely to become too strong, then sow the seed, cover it with finely-sifted soil, and press the whole firmly with the back of the spade. After the lights are on regulate the heat by ventilation, and when the heat declines apply external linings of moderate heating capacity. When the plants show themselves admit air in favourable weather to prevent drawing, and continue this system of ventilation throughout the growth of the crop. As the plants grow, frequent thinnings will be necessary, until, at the end of the final one, the plants will remain not less than 3 inches apart. Water, of course, must be applied, but moderately at first.

If the seed is sown in the first week in January, which is, I think, the usual time, by the beginning of March the lights of the frame may be removed entirely in the daytime and placed on at night; but if they are wanted for other purposes, a mat or canvas protection, properly constructed, will answer the purpose of the lights remarkably well. There is not a great choice of varieties for forcing, but those we have are really very good. They are the Early Short Horn and the French forcing Carrot. The latter, I find, comes in a little earlier than the former, though the Short Horn is a better colour, and, I think, better in flavour. The Short Horn is the one I use, and it gives satisfaction.—Thomas Record.

AMONG THE CONIFERS.—No. 1.

In no class of hardy ornamental trees is there so much real utility and elegance combined as in the Conifers. From the time they are a foot high until the time they attain to large proportions, they are as useful as ornamental. It is in some measure owing to the very early age at which young plants of this order can be turned to account, that they are so much esteemed. A choice selection of young Conifers tastefully disposed about a flower garden in winter has an exceedingly agreeable effect, and offers many points worthy of study. Used for such a purpose, planted on lawns in single specimens or mixed groups, distributed in wild woodlands and over extensive landscapes, they are equally satisfactory.

There can be no doubt but that all the varieties worth growing appear to the greatest advantage when carefully arranged in a pinetum. This, however, can rarely be well done, as a pinetum, to be worthy of the name, should be spacious, and every part kept in tasteful order. Rather than a formal pinetum in small gardens, I should like to see the limited number of Conifers either associated with other shrubs, or arranged in pleasing groups tending to alleviate the formal aspect of those Primrose-lined turf plats not unusually to be seen. My own idea of a thoroughly enjoyable pinetum is the total absence of all formality of arrangement, and the interspersion of groups of Rhododendrons, Roses, Azaleas, Heaths, Kalmias, Ledums, Cratægus, Cytisus, Cercis, Escallonia, Hydrangea, Magnolia, Pæonia, Philadelphus, Ribes, Spiræa, Syringa, Weigela, or Pyrus. In contrast with the best varieties of these species, the Coniferæ afford a far more pleasing aspect than when seen alone, as the flowering shrubs not only conduce to enliven the scene with their blossoms, but impart greater charm to the "dark-hued Pines."

The contrast presented by Conifers of the same kind growing in different soils, is very striking and worthy of attention. Even such hardy and common kinds as the Spruce and the Larch, exhibit the influence of soil and situation upon their general appearance in a remarkable manner. Let the soil be light and sandy, or so close as to merge upon clay, but at the same time well drained, and the trees will flourish. The Spruces sending forth their pendant branches in graceful curves, tasselled with a profusion of luxuriant laterals, and tapering in all the stateliness granted them by Nature, compel our admiration and care. I have occasionally met with such trees—notably at Maresfield Park—but perfect specimens are by no means common. A remarkable difference is frequently visible in large plantations, the Larch appearing to flourish much more vigorously upon slopes and elevated positions than it does in low-lying damp soil, where it is not at all a free grower. Its hardy nature does certainly enable it to mature a slight annual growth, even in such a position, but stunted moss-clad trees are an unpleasant sight. It is, therefore, highly important that those who plant such trees should possess a thorough knowledge of the soil and situation they require.

The Wellingtonia may be taken as an instance. It is a tree that should never be planted in a permanent position without an especial preparation of the soil. What it evidently requires is a very deep, cool, and tolerably rich soil, and without this it cannot be depended upon as a lasting ornamental tree. It is, consequently, not a desirable plant for poor or shallow soils, owing to the very considerable outlay that must be incurred in preparing the stations. The many interesting accounts published during the last few years about the appearance of this forest giant in the woods of California, have created a sort of rage for it, so that there is hardly a garden to be seen that does not hold a few plants. They are generally handsome and thriving, but it is very probable that as the trees gain size, instances of failure and bad health will multiply among them, owing to the exhaustion of the too shallow soil by the strong quick growth.

It may be useful to give a few select varieties worthy of associating with the Wellingtonia in its young state. Of the Piceas, the very distinct and beautiful Pinsapo, one of the most hardy Conifers, stands first, and the elegant Nordmanniana and nobilis deserve to follow. Among Retinosporas, pisifera is very beautiful when laden with its seed; leptoclada, very symmetrical and distinct; and the dense purple ericoides, so useful for combining with the various green varieties. The Pinuses afford us the striking macrocarpa, monticola, and Cembra, all distinct and good. Then there are the Thujas, of which Lobii and aurea are the best; gigantea, or Libocedrus decurrens, is also valuable for its pleasing shade of green, but its peculiar rounded top give it a somewhat squat and clumsy appearance. Thujopsis borealis is a great beauty, very elegant and symmetrical. Of other desirable varieties I may select the Deodar, the red and white Cedars, Cupressus Lawsoniana, Abies canadensis, the Hemlock Spruce, increasing in beauty as it gains size, of which there are some noble specimens at Alton Towers, the elegant Taxodium distichum, and Araucaria imbricata. There are, of course, numerous other varieties worthy of a place, but my object is to give a few very distinct

kinds for the guidance of amateurs, to whom a long list is often puzzling and of very little service.—Edward Luckhurst.

OLD PEARS WITH NEW NAMES.

In your last number I was pleased to see an article from "T. R." on "Old Pears and New Names," and that he has been able to fix the name of the Glastonbury Pear, which I hope will be retained, if it is sent out by the trade, as I believe it is still mentioned in the French catalogues. In this neighbourhood it is first-class in every respect, both from pyramids and the wall, and where it succeeds should be extensively planted, as out of many varieties it is the best that I have grown. I have no doubt the Pear sent out the last two years by Mr. Sampson, of the Yeovil Nurseries, under the name of the Benedictine, stated to be a seedling and raised at Glastonbury, is the long-forgotten Esperione. To prove the correctness of "T. R.'s" remark, "the great change brought on some Pears by the soft mild climate of the west of England," and the necessity of trying many sorts before you plant many trees of one kind, I will state that with me Louise Bonne of Jersey, which appears to be a great favourite, is almost worthless, and does not even deserve that limited space which Mr. Rivers, in his "Miniature Fruit Garden," recommends.—I. A. P.

Esperine, of Van Mons (*Esperione*, Rivers? *Grosse Louise du Nord*, Decaisne). First to second size. First quality. Ripe November 6th, 1870, at Merriott, Somerset. Form obtuse pyriform, drawn-in near the top, much bossed, irregular in outline, and knobbed at the summit. Stalk strong, about an inch long, somewhat curved, and set a little obliquely, sometimes sunk or inserted level with the surface. Eye large and half closed, set in a wide and rather shallow basin. Skin very thin, greyish yellow, covered with small greenish dots, and spotted and netted with cinnamon-coloured russet, which becomes on the sunny side of a pale rose tint. Flesh white, rather fine, and somewhat melting. Juice very abundant, refreshing, sugary and vinous, with a nice delicate perfume.

The above description was made from fruit produced here in 1870, and the following description was made from fruit presented to me by Mr. Sampson, of Houndstone, near Yeovil, in November, 1871, and No. 2 is a sectional figure of one of the fruits.

Benedictine, Sampson (*Doctor*, of the Glastonbury gardens). First size. First quality. November. Pyriform, rather regular but somewhat one-sided, even and smooth on the surface. Skin very thin, yellow, suffused or nearly covered with bright cinnamon-coloured russet, which is brightest on the sunny side, pitted with brownish dots, and strewn with brownish specks in the shade. Stalk about 1 inch long, set in a narrow knobbed cavity by the side of a fleshy lip. Eye half closed, and set in an uneven, knobbed, and rather deep basin. Flesh white, fine, excessively melting, and somewhat gritty at the core. Juice very abundant, acidulated and aromatic, with a nice slight astringency and piquant flavour. A beautiful and delicious fruit, with somewhat of the appearance of Marie Louise, and much of the flavour and quality of that sort.

As above, I have given a true and faithful description of the fruit sent to me under the name of the Benedictine by Mr. Sampson who said that he obtained his grafts from a Mr. Lovel, of Glastonbury, and that the original tree grows in a garden, which had at some time belonged to the religious order called Benedictines. How old the tree is I have not been able to ascertain; its age would help to determine whether or not it is or could be referred to the Esperine, which was raised by Van Mons between the year 1820 and 1830, and was dedicated by him to Major Esperen. The fruit was figured by Bivort, in his "Album de Pomologie," in 1849, and later by M. Decaisne, of Paris, in his beautiful work the "Jardin Fruitier," in 1865. M. Jules Liron d'Airoles in his "Notice Pomologique," both figures and describes it. Neither M. Bivort's, M. Decaisne's, nor M. Liron d'Airoles' figures or descriptions agree with those of the Benedictine as made by me, nor do the fruit presented to me by Mr. Sampson under that name resemble the fruit of the Esperine produced here in 1870, and of which I had about half a bushel, so that I had a fair view of the sort, and I made my figure from a medium-sized one. Mr. Rivers, at page 503, thinks the Glastonbury Pear the same as the "Esperione." I suppose he means the Esperine? as I do not know a Pear called Esperione, nor can I find the name in any book or catalogue, not even in Mr. Rivers's own catalogues from 1843 to 1871, although it may be in them and has escaped my notice. I, therefore, from what Mr. Rivers has written, and from what I know of the two Pears, must withhold my decision until both sorts begin to show their leaves, a thing that will very soon decide whether the two sorts are the same or not.

As to the Brockworth Park, I have compared its wood and leaves with many sorts, but have as yet been unable to identify it, neither do I know another Pear like it in form and size, although the fruits I saw exhibited at the International Fruit Show in October were, no doubt, produced under advantageous circumstances. I doubted the Pear being a new one at the time it was sent out, and expressed myself so; yet I have not yet been able to identify it with any other. I bought it when it was offered for sale, and have multiplied it considerably; and I may state, as it takes well upon the Quince, a few years will suffice to show whether I and others have paid our guineas for something that is something else. —John Scott.

P.S.—The Brockworth Park was certainly amongst the finest if not the finest, of the specimens of Pears shown on October 4th. As most of our own pomologists and some of the best continental ones were at the Show, it is surprising that none of them recognised the Brockworth under its proper name, if it has another. The basket and splendid Pears were conspicuous enough.

[There is clearly some confusion or misapprehension in regard to the Pear referred to in the above communications and the "Esperine." On the 16th of November, 1865, we received from Mr. Porch, of Edgarley, a very handsome Pear with a communication, from which the following is an extract: —"Making inquiries from the oldest inhabitants concerning the tree, I can learn but very little. From the situation one would fancy the tree must have been a wild one, as it is growing in a hedge, north aspect, surrounded by Elms. From its great age I cannot find out whether it has been grafted." Believing it to be a new variety, we named it in our notes "Edgarley Foundling," and made the following drawing and description of it:—

Edgarley Foundling.—This handsome Pear was sent by J. A. Porch, Esq., of Edgarley, Glastonbury. The fruit is very narrow towards the stalk, which is slender and woody. The eye is bold, stout, and open. Skin entirely covered with warm, pale brown russet, which has numerous rough scales of russet on its surface; it is also speckled with grey and green dots, particularly on the shaded side. Flesh white, firm, but smooth and fine-grained, very buttery and melting, with a fine brisk, sweet, and very rich flavour, and delicate perfume. Ripe in the middle of November.

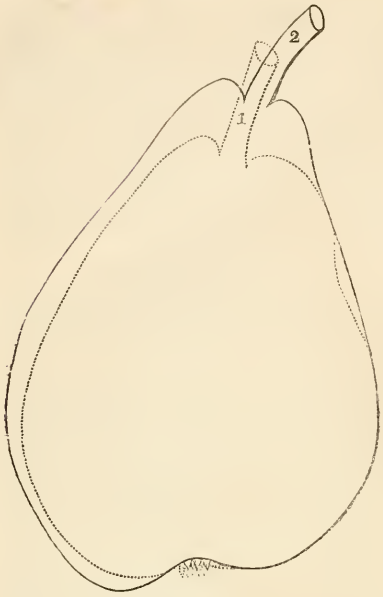
On the 18th of October, 1864, we received from Mr. Rivers, of Sawbridgeworth, a fruit of the Esperine Pear, of which the following are a drawing and description:—

Esperine.—A handsome fruit, even and regularly shaped. Skin smooth, of a beautiful golden yellow colour, with streaks and a very pale crimson cheek on the side next the sun; and round the crown, there are also some sprinklings of thin cinnamon russet here and there. Eye quite open, set in a considerable depression. Flesh coarse-grained, crisp, juicy, sweet, and half-melting, but without any merit. A second-rate Pear, ripe in the middle of October.

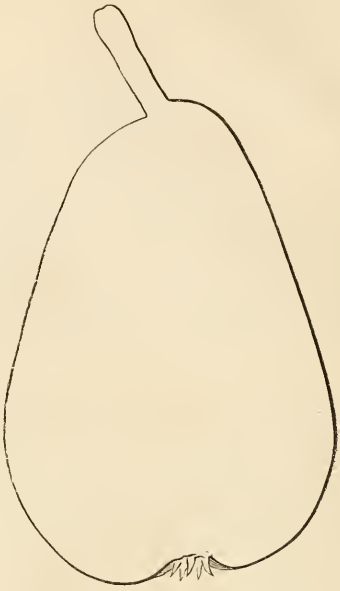
Can it be possible that these two Pears are the same? Much of the evidence for or against their identity will rest on the age of the tree at Edgarley. The Esperine Pear, which was raised by Van Mons at Louvain in 1823, does not appear to have been one of those sent by him to the Horticultural Society of London, and distributed at any period; nor is it mentioned in any of the editions of the "Catalogue" up to 1842 as being in the collection at Chiswick. It has never appeared in any nurseryman's catalogue in this country, with the exception of Mr. Rivers's, and there for the first time only in 1855 and again in 1859, and there does not appear to be any evidence of its having been distributed among us. These facts and the age of the tree are against the probability of the Edgarley Pear being identical with the Esperine.

So far we should have had no difficulty in the matter, and would have been disposed to pronounce them distinct, had we not received on the 7th of November last, from Mr. Sampson, of Yeovil, a fruit of Benedictine Pear, which is said to be identical with the Edgarley, but which appears to us to be distinct from what we have seen of that variety. The figure and description we made at the time, are as follows:—

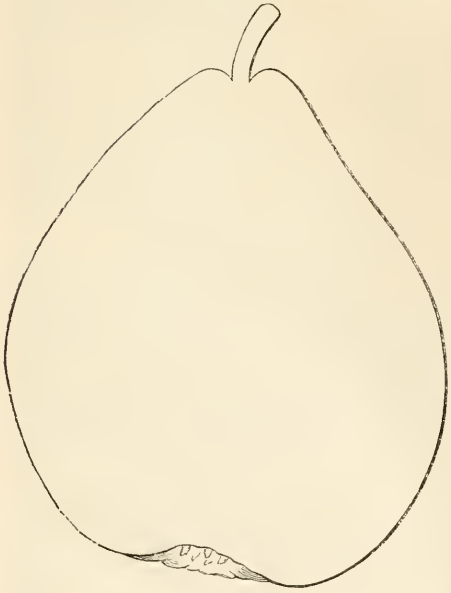
Benedictine. — This handsome Pear very much resembles Brown Beurré in form and colour. The eye is open, the stalk short and stout, and the flesh is very juicy, but also very



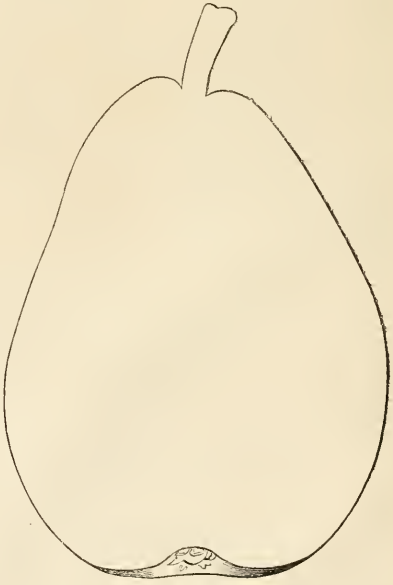
1, Esperine. 2, Benedictine.



Esperine.



Edgarley Foundling.



Benedictine

gritty, with a brisk, acidulous, refreshing flavour, without richness or aroma.

Our own opinion is that the Edgarley Pear and Esperine are quite distinct; and as regards the Benedictine, it is quite possible that the fruit we received may not have been a characteristic specimen, and the inferior quality may have been due to the season. There can be no doubt whatever that the Edgarley Pear is a very excellent one.—Eds.]

MUSA ROSACEA.

This species is a native of the Mauritius, and is very ornamental in the stove, but I am not aware that it has been tried in the open air during the summer months, nor do I think the result would be satisfactory if it were so used. M. rosacea, like the beautiful M. coccinea, does not belong to that section of this genus which is prized for its fruit-bearing qualities. Its estimable features are a noble port, handsome flowers, and a growth from 10 to 15 feet in height. These plants are stemless, although they are generally described by the majority of people as having stout and tall stems, which in reality are composed of the very long and compact sheathing bases of the leaves. The blade of the leaf in the species here figured is dark green and oblong, with a prominent midrib. The bracts of the flowers—the special objects of attraction in this plant, are a beautiful, long-lasting, rosy pink, and, combined with the noble appearance of its leaves, produce a splendid effect in any group of plants with which it may be arranged. I would strongly urge upon every grower of stove plants who does not already possess this Musa, to add it at once to his collection, if sufficient height can be allowed for its accommodation.

Musa rosacea.

The cultivation of these plants is extremely simple. When young pot them in about equal parts of good rich loam, well-decomposed manure, and leaf mould, with a little sharp river or silver sand added. After they have attained to some size a little less manure should be given, for as fruit is not expected of them, the withholding of a little nutriment will only induce them to flower earlier. They enjoy copious waterings, and in the case of the fruiting varieties liquid manure is extremely beneficial, though I have never used it for this species.

In a young state M. rosacea forms a beautiful object for the decoration of apartments, and even when it grows too large for vases in the drawing-room, it may be used with advantage for halls or staircases, or when any special decorations for grand parties are required. I am not aware that the species here figured is used economically in any way, but several of this genus are extremely useful. One in particular, M. textilis, yields what is known as the Manilla Hemp, and is largely cultivated in the Philippine and other islands for its fibre. The finest portion of this is used for shawls, and I am informed that a great quantity of the chignons which adorn (?) the heads of the fair sex are also derived from this source, the coarser material being used for ships' ropes, &c.—Experto Crede.

STRAWBERRY CULTURE.

You have had several papers on the cultivation of Strawberries, and about these I think there is still much to be learnt, especially with regard to the soils and localities suitable to the different sorts.

Some years since the variety Dr. Hogg was so much praised for quality and hardiness that I discarded British Queen in its favour, and have been grievously disappointed. Last season, having planted it freely, I expected to gather a full crop, and a more ragged, miserable result surely never vexed the heart of a sanguine cultivator. From a row of nearly 70 yards in length I do not think I gathered a quart of Strawberries, and the plants are poor starved specimens which merely exist. I thought this might be owing to the soil being too light and calcareous, but the crop and the plants are no better where the soil is more loamy and free from lime. La Constante is very little better; the plants seem more hardy, but the crop is very indifferent.

I think if some intelligent cultivators were to publish in

your Journal their experiences the information would be of great value, specifying at the same time the character of the soil as regards the clay, the lime, and the iron, the sorts that grow best, and those they cannot grow satisfactorily. In this way the ordinary grower would eventually obtain some guide which would save him much time and many disappointments.

The soil in my garden varies from a light alluvial to a stiff clay; in the former I have found Rivers's Eliza, Eclipse, Keens' Seedling, Sir Joseph Paxton, and Duc de Malakoff succeed well. In the heavier soil the Roseberry, British Queen, Yates's Seedling, and the Vicomtesse Héricart de Thury do tolerably well.

Many years ago, in consequence of some information (but whence derived I have forgotten), I dressed a worn-out Strawberry bed with the refuse of a brick-kiln, and the burnt earth and fragments of bricks were put on rather thickly between the rows. The effect was very good, and the blooms and fruit exceedingly fine. Recollect that this was a worn-out bed. Not having access now to the same material, I have not repeated the experiment.—T. G.

MADAME CHIRARD AND OTHER ROSES.

I RECEIVED the following from Mr. W. Paul:—"In my judgment you are right in recommending Madame Chirard. With me it is quite first-class; and everyone who sees it pronounces it so. I first met with it in the nursery of Pernet at Lyons, the same year that I saw Baronne de Rothschild in the same nursery, and I find that I marked them both as 'first-rate.' As I journeyed northwards I found at Orleans Madame Alice Dureau; and this I also marked first-rate [It is so here—W. F. R.], with the additional note that I rather preferred Madame Chirard." I do not think it equal to Perfection de Lyon or Madame Chirard, two grand Roses, of excellent growth and general good attributes; but it is still a first-class Rose in the line of Reine du Midi, which does not bloom freely here. Reine du Midi is spherical and fine when it opens freely.

There is no Rose in the line of rose-colour equal to Louise Peyronny *alias* Lælia, but it is not very strong in constitution, although derived from La Reine.

I thank Mr. Peach and the electors much. Their selections of Roses are good on the whole; but, as far as my experience goes, in this exposed place, I make out two reluctant bloomers, six *presque pleine*, and six bad growers on the Manetti stock. Roses which are *presque-pleine* Roses are valuable for the garden, as they bloom freely in bad weather, and bloom late in the season, but they are bad for travelling, and show early in summer "a shilling eye."—W. F. RADCLYFFE.

THE ROYAL ASCOT VINE.

REFERRING to the Journal of September 22nd, 1870, page 221, respecting this Grape, I am very happy to say I am now in a position to speak most highly in its favour. As a Vine for pots it is quite first-rate, being very refreshing to eat, and so black as to look well against the green leaf when used for table decoration, while for Grapes to cut in winter and early spring it stands without an equal. If strong selected fruit-eyes are started in January, and the green canes stopped in July, a nice crop can be obtained in the beginning of the next year and onwards from plants in 15-inch pots. Thus in about twelve months from starting the eyes you have the reward of all the labour and care. A small dung bed and a glass house without much fire heat are what is required. With a little tact, from 15-inch pots capital ripe Grapes could be obtained in July and January out of the same glass building.

When the Vines have fruited once I throw them away. I know that by such treatment it will do well, but as to its bearing perpetually I will say nothing. Trying to make a Vine, or indeed any plant, work on with little or no rest is an attempt to upset the laws of Nature, and from which I rather abstain. I advise those who have it not to obtain it. With me it is grafted for growing in ground vineries, but I intend another season to try it also against a wall, when I will state the results, and the stocks I have used. Its hardihood and free bearing are unexceptionable. I send with this communication (December 26th), a bunch of miniature Grapes obtained from a green cane of this year's growth in a 10-inch pot, which stood against an eastern wall on which the sun ceased to shine at 11.30. Here several bunches were produced. When the nights became frosty, however, it was removed to an outhouse until I had time to write this. I removed it in order to see if in so low a temperature bunches could be obtained from green canes of the same year's growing. Had the Vine been removed to a glass house, slightly heated, all the bunches would have ripened.

The failure I mentioned was totally owing to the Vines which I received being from an exhausted stock, brought about in the eagerness to produce a quantity of Vines in a very short time. The Golden Champion, I regret to see, is much written against. I have seen some grand bunches in Yorkshire grafted on Bowood Muscat, but I think a more hardy stock would suit me better. I shall try my best with several stocks, because so noble a fruit is worthy of some painstaking.—R. M. W., *Fir View, Walkley, near Sheffield.*

LILIES.

I HAVE never found any difficulty in growing Lilium japonicum, which thrives with me in peat and leaf mould. I winter the pots of this and other Lilies, plunged, like Hyacinths and such things, in sawdust, anywhere out of reach of actual frost. I think the first, or slow-growing period, should be prolonged as much as possible, after which the warmer berth of greenhouse or conservatory encourages development to a high degree. A free circulation of air is, however, indispensable, and the contrary most prejudicial—to wit, anything of continued close and moist treatment.

Much as I object to peat for general cultivation, Lilies undoubtedly like it. They will, however, do well and healthily in loam, with leaf mould or very old hotbed manure. This is all that is necessary for the Martagons and other hardy sorts, still I find myself giving a "bit of peat" to a favourite. L. longiflorum will flourish planted under a wall for years, and I have had beds of it in great beauty under peat treatment in a genial situation. It is apt, as my friend Mr. Wilson says, to suffer from early frosts. In this case gangrenous spots appear on the leaves, and the plants are checked and injured. Even the common white Lily sometimes suffers in the same way here. L. japonicum sometimes lies dormant for a year, which I believe is induced by too dry a season of rest. L. Wallichii I never could induce to start at all. L. tenuifolium came up freely from seed, and thrived in absolutely pure sandy loam under a glass frame in front of my stove. L. testaceum luxuriates with me out of doors in strong loam heavily manured.

Lilies seldom grow or flower strongly the first season out of doors after transplanting. They sometimes, too, resent division in-doors. When a mass is broken-up for stock, rather small pots should be used, and the plants brought on slowly. I should be glad to know what Lilies are known to produce seed in England. I have only observed it upon the old Martagons, chalcedonicum, the old orange, and once upon L. testaceum, out of doors; in-doors, L. tigrinum speciosum and giganteum have seeded, but L. japonicum and longiflorum never.

Your correspondent's autumn Daffodil might be Oporanthus luteus, obtainable from the nurserymen, perhaps even now.

By the way, Lilium longiflorum, which forces very fairly, becomes after that operation almost a perpetual, jumping up and flowering at all sorts of odd times, sometimes "*In tempore quod rerum omnium est primum*"—say just in time for your Christmas ball. Candidum forces well.—R. T. CLARKE.

HOW TO DIVIDE A PIT ECONOMICALLY.

"A" HAS a pit 60 feet long, with hot-water pipes along the front and across one end. Now, could he manage to keep out the frost, he would make a hotbed at that end, but at present the heat, by diffusing itself, prevents his doing so. He would also like to use the bottom of the pit for standing pots from 12 to 15 inches in height upon, but he is told that this would necessitate the formation of brick divisions, which would seriously interfere with the existing arrangement of his water pipes, and entail an expense he does not wish to incur.

The advantage of having the floor of the house divided is that one can so regulate the temperature in the one, two, or three lights forming a division, as to grow plants requiring the most different temperatures in each, keeping that compartment in which the pipes meet at right angles, for those that need the highest. Now to effect a very temporary division a clean, double mat would do well, a strong piece of calico on a frame better, and a partition made of three cross pieces and half-inch boards best of all. The bottom should run from wall to wall at any depth required, and the top should be made to suit the slope of the rafter, leaning lightly against it secured by a nail

or screw, so that the sash could slide freely. We find these constructions very useful in a number of cases of which the following may be taken as an instance:—Four lights of a pit have been filled with cuttings, some are half-struck, others want a fortnight of attaining that condition. Place the struck ones in two lights, and the unstruck in the other two; insert the wooden partition between them, and then you will be able to give warmth and closeness to the one division, and air, so as to harden-off, to the other.—R. F.

OUR EDIBLE FUNGI.

That any of our indigenous Fungi, other than the familiar and fragrant "pink gill" of the pastures (Agaricus campestris), are wholesome or fit to be eaten is a thing which finds small credence even among those who might be supposed to know better. Now, nothing can be more contrary to fact than this mistaken idea, and it is desirable that it should be generally exploded. There are many other species, almost, if not equally, valuable, which, through ignorance, prejudice, or both, are allowed year after year to spring up and grow and waste, when a little knowledge would cause them to be sought after, and converted into useful and delicious articles of food.

Let us take a case in point which the present year affords, as showing that no small advantage would be derived from even a very slight acquaintance with the more familiar forms of our edible Fungi. While the ordinary field Mushroom was this year almost a blank, and the supply for the manufacture of catsup all but *nil*, the Champignon, Marasmius oreades, a species equally palatable, and capable of producing a far superior catsup, was allowed to wither and to waste unheeded, though it might have been largely and profitably availed of for the production of this last-named article of *cuisine*.

Another case, for which, however, we must go back to last year—by the way, a real Mushroom year. In journeying up and down the Great Southern line we, as well as many others, in passing through some of the rich feeding grounds of Kildare, were struck with the marvellous patches of Mushrooms of all sizes, from that of a cheese-plate to a platter. Our astonishment was rather increased on the return journey to see these beautiful-looking "flaps" remaining ungathered. We at once concluded that the abundant supply was in excess of the demand, and that they were not considered worth the gathering. However, on since thinking over the matter, we incline to believe that they belonged to the nearly allied and equally useful and palatable Agaricus arvensis, or Horse Mushroom, and that prejudice, not the consideration of profit, was the cause of their being left to bleach and wither.

Some years ago we took occasion in this Journal to allude with regret to the want in our public institutions of well executed models of at least the commoner forms of esculent Fungi, as also of their deleterious compeers. At Glasnevin Botanic Garden, where it could be seen by such numbers of the public, and specially accessible to gardeners, young and old, such a collection would be of the highest value, in improving their acquaintance with, and enabling them readily to identify at least the most useful kinds.

However, no models, no matter how beautifully and accurately executed, can be so instructive as recently collected specimens; and our reason for alluding to the subject to-day is, that we may inform our readers that in the course of the coming year there is a probability of such collections being for the first time placed before the Dublin public. The learned Professor of Botany in Trinity College, Dr. E. Perceval Wright, being anxious to familiarise gardeners and the public with their forms, and remove some of the prejudice which exists against their use, liberally proposes to offer prizes for the best collection of edible Fungi, correctly named and tastefully set up, to be competed for at the Special Fruit Show of the Royal Horticultural Society of Ireland, to be held in the second week in October next. In order further to provoke spirited competition and an interesting display, the Society will supplement Dr. Wright's prizes with its silver gilt medal for the first prize, its silver medal for the second, and bronze medal for the third. We trust that not only will the call be responded to by our scientific and gardening friends at home, but that some of the many accomplished gastronomic fungologists of England may be induced to come over with instructive collections.—(*Irish Farmers' Gazette.*)

Training on Walls.—As cottagers often find a difficulty in training trees upon a stone or other rough wall, a very good plan is to nail osiers or hazel 7 or more inches apart on the wall, and train the trees upon them by tying-in the branches. This will save nails, as a rod 8 feet will require but a shred at each end and one in the centre.—Cangort Park.

BURGHLEY HOUSE,

The Residence of the Marquis of Exeter.

In "Domesday Book" it is spelt Burghelei and Burglea, and detailed as part of the endowments of Burgh Abbey. In later archives it is described as "the manor of Burle, in the township of Burle, near Pillesgate."

Racy and interesting are the memoirs of many of its earlier tenants, but we must pass them over to note that it came into the possession of the Cecils on the suppression of Burgh Abbey, in the reign of Henry VIII.

The chief portion of the mansion was erected by the celebrated Lord Treasurer Burghley during the reign of Elizabeth, and the dates on various of its parts range from 1577 to 1587. A residence had been erected on the same site by some of his ancestors, for he says in one of his letters, "I have set my walls on the old foundation. Indeed, I have made the rough stone walls to be square, and yet one side remaineth as my father left it me."

The Lord Treasurer was the first to form a park around the mansion, but it was much enlarged by the Earl of Exeter in 1665, and though we cannot precisely state its acreage, we believe its circumference is about eleven miles. In a portion of this park, as there probably is underlying the whole of it, iron ore has been found near the surface, and this is now being worked.

Burghley is no exception to the rule, No ancestral hall is without its romance. Burghley, in truth, hath its many romances, but we will only particularise, and that very briefly, one versified by Tennyson.

Henry, first Marquis of Exeter, retaining only his family name, retired to Bolas in Shropshire. He there wooed and won Sarah Hoggins.

> "He is but a landscape painter,
> And a village maiden she."

He represented that he was poor—

> "I can make no marriage present,
> Little can I give my wife;
> Love will make our cottage pleasant,
> And I love thee more than life."

Towards that "cottage" they journeyed; seeing

> "whatever's fair and splendid
> Lay betwixt his home and hers."

At length they reached

> "a mansion more majestic
> Than all those she saw before."

She wondered to see the deference with which he was received, and the freedom with which he passed "on from hall to hall," but the solution was at hand;—

> "For, while now she wonders blindly,
> Nor the meaning can divine,
> Proudly turns he round and kindly,
> 'All of this is mine and thine.'"

She was "The Lady of Burleigh," and gladdened should we be if we could add that she sustained long and firmly her elevation, but the transition was too sudden; her spirit was not self-reliant—she feared that she could not worthily be the Marchioness—

> "So she droop'd and droop'd before him,
> Fading slowly from his side;
> Three fair children first she bore him,
> Then before her time she died."

Burghley House is about a mile to the east of the Stamford station of the Stamford and Essendine Railway—a railway made by the Marquis of Exeter; hence it has been said that travellers by it are the Marquis of Exeter's passengers. It need hardly be remarked that when our great trunk lines were projected great opposition was made to them by the gentlemen through whose estates it was proposed they should pass, and originally it was intended to take the main line of the Great Northern through Stamford on the old Great North Road, but the Marquis of Exeter of those days opposed its passage, and successfully. Stamford, great in coaching days, suffered much from the diversion of the traffic by road without receiving compensation in the shape of railway communication with the great towns of the kingdom; but now all that is changed. By the little line just referred to it is brought into connection with

the Great Northern system, and the North-Western and the Midland lines each have branches to Stamford, so that perhaps no town of equal, if not greater, population is so well provided with railway accommodation. It is not improbable that the opposition to this in the first instance was the best thing that could have happened, for, the want being felt, the railway companies were all the more anxious to meet it.

The principal entrance to the park is on the Great North Road, but there are others in different directions leading through avenues variously planted with Limes, Elms, and Chestnuts. The mansion faces a little to the west of south, consequently the other side has a north-easterly aspect; it is on the latter side that the carriage circle is situated, but it strikes one that something is wanted to break the flat appearance of the wide circle of turf enclosed by the broad gravel drive, say a statue or a fountain, which must, however, be of a character to accord with the building—not necessarily gorgeous, like the richly-gilt wrought iron gates which give access to the house on this and the west side—but noble in its appearance. Round the outside of the circle is a narrow border which in summer is occupied with Dahlias, Hollyhocks, and other flowering plants interspersed among the dwarf shrubs which are the permanent occupants. On the west side the most notable object is a small-leaved Lime tree planted by Queen Elizabeth, and therefore more than 300 years old; its trunk is about 7 feet in diameter, but though preserved with all the care due to so ancient and venerable a tree, its years are numbered, for its limbs, though chained together and propped up, creak ominously, and must eventually give way before one of those strong "sou'-westers" to which it is so much exposed. But there is life in the old tree yet, and when such a catastrophe shall have occurred the stump, which will probably be left, will doubtless throw out fresh branches, and though then for many years the tree will be little better than

Burghley House.—South-west View.

a pollard, it will still remain as a memorial of the Virgin Queen and her far-seeing minister. On the south, or more strictly south-west front, of which we give a view, are a thriving young Oak—at least, young as Oaks grow—planted by Her Majesty when on a visit to Burghley in 1844, and a Lime tree planted by the Prince Consort. Extensive views over the lake and park are obtained in this direction, in one of which a bridge of three arches is seen spanning the water. Eight handsome standard Portugal Laurels in tubs are placed along the terrace walk and sloping lawn in front of the mansion. On the east side is what is called the Orange Court, in which are several stone-edged oval beds grouped round rockwork, in the centre of which is a fountain with an oval basin about 16 yards long by 12 in its shorter diameter. The basin was empty, having been cleared out to be stocked with fish artificially hatched. The orangery, like a great many others in this country, has been turned to other purposes than plant-preserving, though it contains a few Camellias.

Burghley has no conservatory, and the only plant houses are three substantially-built lean-to's, with stone shelves in front and stages at the back. These are chiefly occupied with old plants and cuttings of Geraniums, by Azaleas, Cinerarias, and plants for house and table decoration, such as Draccenas, Coleuses, Ferns, and a number of excellently-bloomed Chinese Primulas, of which Mr. Russell, who manages this part of the garden, finds the double-white very useful for bouquets, as the petals do not drop so readily as those of the larger-flowered and more showy single kinds.

The pleasure grounds surrounding the house cover between thirty and forty acres, including a large extent of kept grass, which of course involves a heavy amount of labour, and owing to their situation being a breezy upland, it must be difficult to keep the lawns so free of leaves as they were when we saw them. There is an American garden occupying a large circle under the lee of a mount, likewise a rosery; and near the shores of the lake is a garden of 145 small geometrical Box-edged beds, which must be very difficult to plant, as the beds form complete designs from various points of view, and still more difficult to keep in order from their small size, many angles, and exposed position. At the head of the lake there is also a series of long beds on one side of the walk along a bank probably artificially formed, and on the other the ground rapidly descends, and is densely clothed with Laurels and other shrubs. Laurels both Common and Portugal, but especially the former, are planted in great numbers by the sides of the pleasure-ground walks, as they thrive so well under the trees. Of these there are many noble specimens of the Cedar of Lebanon, one having a stem nearly 5 feet in diameter at the base; there are several others almost as large, but not so handsome, having lost some limbs through wind and snow. There are good trees of the Hemlock Spruce and some other Pinuses, but the number of those not indigenous to this

country is not large, nor is the soil favourable to them. The overflow of the lake forms a waterfall, descending into an old quarry now planted, and bears such a resemblance to that at Bowood, though it is on a smaller scale, that one is led to suspect it is the work of the same hand, especially as the lake of thirty-two acres has probably been formed in a similar manner to the one at the place referred to. One of the most beautiful views of the lake is seen in the accompanying engraving from a clever photograph, but since it was taken the boat-house has been pulled down and a new one has been commenced.

In a gardening point of view, however, the great feature of Burghley is its kitchen garden, of which the ruling genius is Mr. R. Gilbert, whose name is well known as a successful exhibitor of fruit and vegetables, and that not in local competitions, but in such as have taken place at Kensington and Nottingham. The garden in which these products are grown, situated far to the south of the mansion, from which it is separated by a wide breadth of the park, is one of the largest in the country, covering about fourteen acres within the walls, but there is also a large area in outside slips, besides an orchard of four acres, in which are grown Sea-kale, Rhubarb, and Greens of various kinds, as well as fruit trees.

We will first enter the houses, which are models of neatness and cleanliness, the walls fresh limewashed, the woodwork not long painted, the glass perfectly clear, and not an insect to be seen. The first vinery is a lean-to, 60 feet by 15, and the Vines are chiefly, if not exclusively, Black Hamburghs, which have been planted about forty years; but by grafting Mr. Gilbert is introducing Black Damascus, Ferdinand de Lesseps, and several new kinds. The scions worked on the old Vines are taking remarkably well, and are treated on what may be termed the bottle system, the lower end being inserted in a bottle of water. Between this house and the second vinery is

The Lake at Burghley

a lobby filled with Chinese Primulas, Callas, Mignonette, and various other decorative plants, among which is the Borage, ornamental by its blue flowers, and useful for claret cups as well. Vinery No. 2 at present contains the Mill Hill Hamburgh, but Mr. Gilbert purposes planting it with Lady Downe's and other late kinds, making the border inside. It also contains a number of Pine suckers, Vicomtesse Héricart de Thury, and other Strawberries on the top shelf, both small and large Vines in pots for the dinner table, Peas, and Potatoes. The next two houses are each 30 feet by 15, and are occupied with pot Vines, chiefly Black Hamburghs and Sweetwaters, breaking very regularly, and Pines to be started at the beginning of February for fruiting. To prevent bleeding in the Vines a kind of varnish is employed, which sets hard and appears to answer the purpose effectually. Two Muscat houses come next, in which fine crops have been produced; indeed an excellent crop still remains, though one-half has been cut. Trebbiano, which Mr. Gilbert esteems highly as a large late-keeping Grape, is to be introduced into these houses, as well as other kinds, which will carry the supply further on in the spring. Vineries Nos. 5 and 6 are devoted to Lady Downe's, West's St. Peter's, Mrs. Pince, Trebbiano, and Alicante, of which the crops are excellent. A span-roofed house in two divisions comes next. This is efficiently heated by three rows of 3-inch pipes, with evaporating tanks, on each side, and three 4-inch pipes for bottom heat under the bed, which is 7 feet wide. One compartment is devoted to Cucumbers, which are trained on a trellis under the roof, and are bearing freely; the other is occupied with Dwarf Kidney Beans, of which a large supply is required.

The next two houses are half-spans, each 40 feet long, and are filled with one of the healthiest stocks of Pine Apples which it has ever been our lot to see. The varieties chiefly grown are Thoresby Queen, Black Jamaica, and Smooth-leaved Cayenne. These, which are intended for July fruiting, are all planted out in a 9-feet bed of loam and bone-dust. The latter Mr. Gilbert finds an excellent healthy stimulant.

Two more lean-to houses (10 and 11), are the first and second Peach houses. The trees in both are in admirable health, and trained with the greatest care to curved trellises 3 feet from the glass. The varieties are Royal George and Noblesse; the former was in blossom in the early house. Figs occupy the back walls, and Strawberries the shelves at top. Another Peach house has recently been planted with Early York, Early Beatrice, and Victoria Nectarine, and is intended in future years to form the earliest Peach house. There is in addition a small Fig house, besides the hip-roofed fruiting Pine pit, which is amply supplied with both top and bottom heat, and contains a large and remarkably healthy stock of plants, with excellent fruit in various stages. At the warm end there is a plant of Musa Cavendishii, which is now bearing a cluster of fruit, but to what size it will ultimately swell it is,

of course, impossible to conjecture. Some idea of the number of Pines grown may be formed from the fact that Mr. Gilbert is supposed to have a Pine ready for table whenever one is required.

We will not enter largely into the vegetable-forcing department, though heavy supplies are required and produced, and that, too, of excellent quality. For instance, of Asparagus there are eleven lights, affording gatherings from November until it is obtained from the open ground, whilst of Mushrooms the production, in abundance and excellence, is remarkable; indeed Mushrooms are quite a speciality with Mr. Gilbert, and he obtains them at all seasons with certainty and ease in a well-constructed house with beds on arches, under which Rhubarb and Sea-kale are forced, and Endive brought on and blanched. The mode of cultivation which Mr. Gilbert pursues was thus described by himself in one of our former volumes:—

"I procure two cartloads of good fresh stable manure, and shake out the longest of the straw. I am not, however, very particular about this. Then it is turned over in the open air once or twice to get rid of the rank steam. When this is gone the dung is taken into one of the sheds at the back of the houses, and about four barrowfuls of ordinary fresh soil mixed with it. The bed is then made up on the floor of the shed to a depth of about 12 inches, pressed rather firmly, and spawned when at a temperature of between 75° and 80°. A covering of about 1 inch of good strong loam in a rather rough state is then added, and beaten level with the spade. By using heavy loam as a covering, the Mushrooms produced are of a much more solid character than where light sifted soil is used; they are, consequently, more valuable, commanding a far higher price in the market. The whole is then covered up with at least 9 inches of straw or long litter.

"I never use any fire heat, as I consider that a piece of useless extravagance. Better Mushrooms can be grown without fire heat than with it, and a continuous supply kept up throughout the coldest winters. Then, if it is so, why should our employers be put to so much expense in erecting and heating grand dungeons for this dainty, which can be so easily cultivated without their aid?"

Three ridge beds out of doors have just been spawned, and three more are shortly to be made, so that there is every prospect of the ample supply of Mushrooms being continued throughout this as it has been in past years. In one of the outside slips is a very cheaply formed and useful pit for Carrots, Radishes, and new Potatoes. Instead of glazed sashes the glass slides upwards and downwards in grooves, in the same way as in some very economical protectors which Mr. Gilbert has had made as a substitute for hand-glasses. The latter are of the best inch deal, thrice coated with paint, and, glass and labour included, cost but 3*s.* 6*d.* each. There can be no doubt that as protectors they will prove more effective than hand-glasses, more durable, and cheaper in the long run as well as in their first cost. With regard to the houses, it should be added that there are but three boilers, the whole of the vineries and peacheries being heated by one of Weeks's tubular boilers, with a spare one in case of accident, and some of the smaller house by a saddle boiler.

In the kitchen garden compartments, of which there are six, enclosed by 12-feet walls, with 16-feet borders, are all the usual crops in excellent condition, and nothing could be better than the condition of the trees on the walls—Pears, Peaches, Nectarines, Apricots, and Figs. The first-named are horizontally trained, in stages about 18 inches apart, and consist of a selection of the best kinds, ripening in succession; and among the Peaches are several twenty-three years old, lifted and replanted last year, and looking none the worse of the operation. In one of the borders Potatoes were being planted for early use, the kinds being Coldstream Early, and Paterson's Victoria, which Mr. Gilbert prefers to kidney varieties; in another border is an excellent stock of Snow's Winter White Broccoli, sown at the end of March, to succeed Walcheren, just over; and in a third a very fine stock of Brussels Sprouts, ranging from 3 feet high, with the stems densely set with fine large sprouts. These were the result of three seasons' selection, but Mr. Gilbert thinks a further selection necessary to render the strain permanent. Extensive quarters of Gooseberries, well-managed pyramid Pears, and all the ordinary kitchen-garden crops are excellently represented. We have now only to add that the fruit-room, root-stores, and the other requisite structures are conveniently and well arranged; that in the young men's rooms the convenience and comfort of the inmates have been duly attended to; and lastly, that the order, neatness, and ability with which everything is managed, reflect the greatest credit on Mr. Gilbert, whom we have long known as one of the best gardeners in this country.

HEATING BY HOT WATER.

Notwithstanding all the elaborate essays that have from time to time appeared in the horticultural press on heating hothouses with hot water—not to say anything of the stirring controversies that have taken place on the subject—we have the best reasons for believing that many whom the matter intimately concerns have still but very vague and erroneous ideas regarding the principles upon which the proper adjustment of hot-water boilers and pipes depends. And from some cause or other, it is a notion very prevalent that the easiest and shortest way to get deeply immersed in the disagreeable and undefined difficulty figuratively termed "hot-water," is to plunge into this heating question, in which are involved furnaces, boilers, pipes, fire, and water, besides that unfortunate being who has to control the elements and conditions of combustion so as to have half-a-dozen thermometer-needles in as many hothouses standing at certain hair-like marks at half-a-dozen different times in the four-and-twenty hours.

It is our belief that, if those who have to do with fixing pipes and boilers were to make themselves acquainted with the effects of heat and the power of gravitation on water, it would be next to impossible to commit the blunders, and resort to the unnecessary and expensive precautionary measures, one so often meets with and has to deal with. It is no part of our intention to pretend to deal with that imponderable and powerful agent called by men of science caloric, but which we shall call heat—hypothetically regarded as a subtle fluid, the particles of which are to each other repellent, but attractive to all substances, though in various degrees. But the effect of heat upon water, an element composed of minute and distinct particles that are supposed not to have the quality or power of transmitting heat the one to the other, as in the case of solid bodies, is one of the matters concerning which some knowledge is indispensable in the case of all who have anything to do with heating by means of heated water circulating in pipes.

The particles of which water consists, it need scarcely be said, have a capacity for heat from different sources, but most manifestly so to us in this case from combustion on the fire. Now the expansion of bodies is one of the most universal effects of increasing their heat. This expansion takes place to a greater degree in some bodies than in others. Liquids expand much more by the same increase of heat than solid bodies, and air more than either. With the expansion of the individual particles of water, their specific gravity becomes less; in other words, they become lighter in proportion to their size. Here lies the whole secret of hot-water circulation in pipes and boilers, and the well-known law which should regulate their relative positions the one to the other. The heated particles of water bound upwards, and, as "Nature abhors a vacuum," their place is taken up by a rush of colder and heavier particles. It is of very little practical use to cavil about the question as to whether heat or the greater specific gravity of the cold water which jostles up the warmer and lighter plays the greatest part in sending up and away the stream of hot water. Both have a hand in it, no doubt. This influence of heat upon water can be very manifestly shown by filling a tumbler with cold water, and mixing with it some coloured particles of matter, and then immersing the tumbler in a vessel filled with hot water. It will at once be seen, by the motion of the particles of coloured matter, that at the sides of the tumbler there is an upward current of heated, and in the centre a downward current of colder, water. And this goes on until the whole is of the same temperature. A glass of warm water immersed in cold has the current reversed in its course—upwards in the centre, and downwards at the sides, where the water is being cooled. Here we have the whole secret of the motion and course of heated water in the boiler and pipes of a properly-adjusted heating-apparatus. And one would suppose that the simple understanding of this would prevent any from making mistakes. Yet, strange to say, many who undertake hothouse-building are entirely ignorant of these simple and well-established facts.

Wherever the heat generated by combustion in the furnace acts most directly and powerfully, from that surface bound upwards the particles of water, and to that spot, simultane-

ously, drop the colder particles of water, to be in their turn sent bounding on their errand of warmth; and anything that attempts to contravene this law of gravitation will be rebelled against by the elements concerned with unmistakeable violence and persistency. Clearly, then, the outlet for the water, thus lightened and charged with its freight of heat, should be at the highest part of the boiler; and that by which the cold water is to run in and down, to take its place, should be at the lowest point. Boiler-inventors and manufacturers recognise this important part of the matter, and always place the flow-pipe at the highest, and the return-pipe at the lowest, point of boilers.

Great importance has been attached by many to the necessity, or at least the great desirability, of having the boiler fixed at a very much lower level than the pipes; and also to the necessity of laying all the flow-pipes on the incline the whole length of the house to be heated. The importance, too, of having the return-pipes on a considerable decline, has, in our opinion, been very much over-estimated. It is entirely unnecessary to form deep, damp stokeholes, in order to sink the boiler to a level below the main body of the pipes, as is so very frequently met with. And as to having the pipes running at an incline after starting from so high a level, we consider it entirely unnecessary. Indeed, one of the most efficient heating-apparatus we ever superintended, started from about a foot above the level of the boiler, and ran down a gradual decline into the boiler. Immediately the water enters a hothouse it begins to part with the heat absorbed from the fire, gets colder, increases in specific gravity as it speeds in its way back to the boiler again, and a downhill career is most natural to it as soon as it leaves the highest point of action, where its heat is the greatest. Practically, we have never found much difference when the pipes went the whole length of the house on an incline, or on a dead level all the way round till it came near the boiler and dropped into the return-opening of the boiler. Indeed there is little fear of a good circulation, provided the pipes do not at any point descend and rise suddenly, and most especially that at any point they do not dip below the level of the return-opening into the boiler. We have had the working of apparatus where pipes, descending perpendicularly, crossed under a walk and rose again perpendicularly to heat another range of 80 feet of glass; but at none of the points were the pipes within a couple of feet of the level of the return-opening into the boiler. This undesirable arrangement worked pretty well until hard firing became necessary, when the result was that the water was thrown out in plunges at the supply-cistern. Such an arrangement should always be avoided; for if it start from the warmest part, it must be forced work for the hottest water to go downhill, and it is equally so to send it uphill cold.

There is another error frequently committed in arranging the route of the water. Suppose, for instance, a boiler fixed at one end of a house of say 80 or 100 feet long, as part of the work allotted to it. As in the case of span-roofed houses, it may be desirable to have three or four rows of pipes all round the house. Now it is not uncommon to find two rows called the flow-pipes taken all round the house to near the boiler, and there to start back with other two on the same route into the return-opening of the boiler. This is giving the water a long journey, and the return-pipes will be found comparatively cold by the time the water gets back by the same route to the boiler. Now, if instead of this the whole four pipes be connected with the flow-pipe, and go round the front and end of the house on a level, and start along the back on a decline to the boiler, and there plunge down the drop-pipe into the return-opening of the boiler, it will be found that while any portion of the pipes may not be quite so hot as at the beginning of the two flow-pipes in the former case, there will not be any portion of them nearly so cold as the last portion of the return. We do not say that this is the best way to conduct the water; but we have proved from experience that the arrangement indicated is the better of the two named, when the pipes are, from any necessary conditions, laid all round the house in this way.

The supply of waste water to the boiler and pipes is often placed anywhere that looks most convenient; but the proper place is to attach the supply to the return-pipe somewhere near the boiler. Fixed to the flow, it will be frequently plunged out by the upward tendency of the hottest water. It is also very undesirable to leave the supply cistern to be kept full either by pouring in water from a pot or by turning a tap, which is often neglected. There should always be a cistern supplied by the action of a ball-cock, and then the anxiety connected with the neglect of supply does not exist.

A great many methods of supplying moisture to the atmosphere of hothouses in connection with the heating apparatus have been adopted—such as zinc troughs placed on the pipes, troughs cast on the pipes themselves, a flow of water running in an open gutter, rising out of the flow at one end and dropping into the return at the other. We have tried all these, and more besides. The best we have tried is, first, to fix a flat-bottom open trough, 2½ inches deep, and 6 inches wide, the whole length of the pipes in front of the house; this trough to have no connection with the hot-water pipes beyond resting on them at a level. In the centre of this trough is fixed a 2¼-inch-in-diameter rain-water pipe, jointed with Portland cement—the best of all joint-cement. This rain-water pipe is connected with the flow-pipe as it leaves the boiler, and with the return-pipe at the other end of the house. Both ends of the trough are made water-tight round the rain-water pipe. At the middle of the house a brass tap is fitted into the close-pipe which fills the trough, and can be adjusted to let water sufficient escape into the trough to just keep it full, and the small pipe nearly immersed in water. The supply to the boiler being of course on the return-pipe, is spoken of already, and by means of a ball-cock. This is the most satisfactory steaming-apparatus we have ever tried; it is simple, requires next to no attention, and the water heats regularly the whole length of the house. In open gutters without the small pipe, we have always found a glut of steam at one end, and next to none at the other, in long houses. The arrangement, besides, is equal to another row of 4-inch pipes.

Space forbids us to say much of boilers. We have worked conicals, cannons, single and triple retorts, saddles, upright tubulars, cruciforms, &c.; and we have some at work yet very much the shape of a butcher's pickling-tub. The last-named are perfectly absurd, of course, holding nearly as much water as all the pipes. Some of the others named are good. The upright tubulars are very powerful, but expensive, and require deep stokeholes. Upon the whole, for cheapness, efficiency, and safety of construction, we give the palm to Meiklejohn's cruciform. Various materials are used in constructing boilers, such as cast and malleable iron and copper. The latter is expensive, but marvellously effective, durable, and safe; and in our own case, we are superseding others with them, and in simple single retorts, 6 feet long by 2 feet in diameter over all. For amateurs, who only require to heat small houses, we know of nothing so efficient and cheap as Meiklejohn's amateur's retort. Fourteen years ago we heated a late vinery 63 feet long with one of these, and it is yet doing its work well. As to valves for stopping and regulating the flow of water, we have had numbers in use, but we consider Messenger's patent valve the most efficient, simple, and least likely to be out of repair of any we have tried.—(*The Gardener.*)

THE GLADIOLUS.

Just a few words in respect to the query put by "Stiff Soil," page 485, and the answer it has called forth.

It appears to me that the main fault does not lie in the ill-health of the bulbs, although I admit that it is impossible for diseased roots to produce good spikes of bloom. I should imagine that "one of our greatest English growers" would avoid sending out bulbs that were unhealthy, and, if such were the case, it is possible that he was not aware of it.

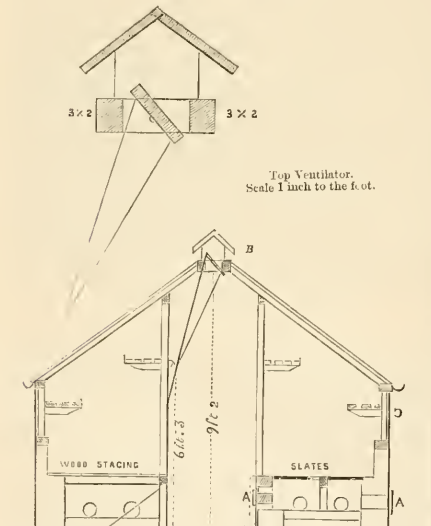
It seems that the inexperienced, and the experienced as well, have got hold of an idea that the Gladiolus is subject to an incurable disease, and this idea being strengthened by some of our principal writers, I fear it will be a long time before it is eradicated. I do not believe such is the case. My experience tells me that bulbs planted in soil which has previously had thick dressings of manure, decay and die prematurely; but that when planted in a moderately rich soil, and when coming into bloom, stimulated with weak liquid manure, they rarely show any unhealthy symptoms. The Gladiolus is like any other bulb, the older it gets the more exhausted is it, and the quality of the flower of course decreases with the degeneration of the plant. Let this idea of hereditary disease be destroyed in the minds of the public, and this genus of plants will yearly become more popular, and be much more extensively grown.

I expected the price of the Gladiolus bought by "Stiff Soil" would be questioned, but not one single word do his advisers say about it. Probably the bulbs grown were low-priced varieties, and if so, how is it possible to expect them to throw up

fine spikes? But if "STIFF SOIL" did have show varieties, for which, of course, he must have paid good prices, he did right, after all his care and attention, to look for some decent spikes amongst them. I have always observed that the bulbs for which 3*s.* 6*d.* and upwards is paid, invariably produce the best flowers. "First get the goose, and then cook it." I wonder what sort of spikes "STIFF SOIL" expected? Wonderful spikes, perhaps, after his great liberality towards them—equal to those we see exhibited by Messrs. Kelway year after year. If his bulbs have spots and black marks in them indicative of disease or decay, surely one man can see them as well as another? It is unnecessary to send a sample of them to any Gladiolus physician for his diagnosis of it. Allow me to give "STIFF SOIL" a little advice upon this matter. First procure good varieties, which he will find, if he refers to any of our English lists, depends upon the price charged—the higher the price (excepting the improved Continental varieties) the better the flower—and having carried out the advice given him by "D., *Deal*," and also the instructions to be found in the principal catalogues, particularly Messrs. Kelway's, of Langport—"*Attends pour les effets, espérant pour le mieux.*" May "STIFF SOIL" have a better report to give us twelve months hence.—EXPERTO CREDE.

BEDDING-PLANT HOUSE.

I SEND a sectional drawing of a small bedding plant-house which I have put up here on an economical plan—that is, economical in point of expense, and economical as regards space, all the plants being fully exposed to light. There are two shelves carried all the way round, one of which, the centre shelf, is wide enough for four rows of 4-inch pots placed cross-



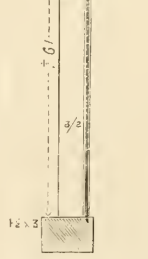
Top Ventilator.
Scale 1 inch to the foot.

Section of House. Scale one-quarter inch to the foot.

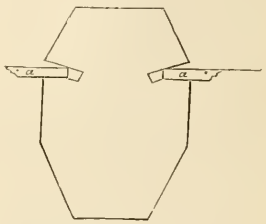
ing each other; the outer one is for three rows of pots. The plants on the shelves are easily watered by a small step-ladder from the central path. I use no putty and have no laps; the glass in the sides (marked c in the section), merely slips into grooves, the upper groove being made seven-eighths of an inch deep, the lower one three-eighths. The glass is slipped up into the upper groove first, and allowed to fall into the lower one. The glass for the rafters and sides is all of one size—20 inches by 16, and is 21-oz. fourths. The upright side pieces, 3 inches by 2, which support the upper piece of wood, 3 inches by 3, on which the ratters rest, are set back 1 inch on the wall-plate, so as to allow the glass to slide freely past them in the groove. The glass is continuous on the sides from one end to the other, the squares merely butting one against the other. This prevents all necessity for sashbars. I cut a nick in the bottom groove in the centre of each pane, to allow rain to drain out of the groove. The panes of glass in the rafters are pushed up from the bottom, and butt one against the other. They are fastened at the bottom by a bent galvanised iron wire pin, which is screwed on the inside of the upper pan 3 by 3, so that at any time in case of fracture the pin can be unscrewed and all the glass taken out. The spouts are fixed in the same way by strong iron crooks bent over to the top pane and screwed on to the inside.

Spout.

The water from the roof is carried into a tank made the whole length of one side of the house, by cementing the outer wall, and building an inner wall to carry the staging. The staging over the tank is of slate, with two rows of hot-water pipes confined in the chamber underneath. Sliding ventilators, as A A, are put into the inner and outer walls. If both ventilators are closed, the space over the water-tank acts as a hot-air chamber, and keeps the slates at a temperature of from 90° to 100°. The heat is, however, entirely under control by means of the double ventilators.



Side C, 1 inch to the foot.
Outer line glass.



Section of rafter, 3 by 2 inches. A A, Glass.

On the opposite side the staging is open woodwork, laths 3 inches by 1 inch, half an inch apart, and nailed together in 4-feet lengths. Two rows of 4-inch pipes, one flow and one return, are supported by the wooden staging, by wood pieces from the uprights into the wall. These wood pieces are 4 feet apart, and gradually rising 1 inch at every upright from one end of the house till the pipes reach to the highest point of the flow, under the slate tank, on the other side.

The house, owing to want of space, is only 25 feet long, and contains a little over 90 feet of pipe; but the flow is so perfect that there is hardly any perceptible difference between the heat of the flow and return pipes where they enter the house.

The boiler-house is at the opposite side of a path 5 feet wide, at the end and as a continuation of a five-light frame, the flue from the boiler heating the frame; the boiler, a common small saddle-back, properly set, the fire playing through and all round the boiler. I have not sent a ground plan, as there is no necessity.

The shelves are made of laths 3 inches by 1 inch, screwed on to light flat iron bars, so as to be moveable in sections, and to be taken out when required; they are supported on wood brackets tenoned into wooden uprights. The water-tank is made with a slight fall to the end farthest from the door; and under the staging, which returns at the end, a small cistern is made, about 2 feet square and 2 feet deep, to dip a can into,

the cistern being supplied from the tank by a tap. As there are two rows of hot-water pipes over the water-tank, it helps to keep the rain water during the winter at the temperature of the house.

The ventilation under the wood staging is through openings in the brick walls, with moveable shutters hung on hinges and regulated by a string. The upper ventilator is a fixed pent with moveable shutters hung on pivots, and also regulated by means of strings. The ventilation is in all respects very efficient, and there is always a slight current of air passing under the glass, as the glass in the rafters does not touch the wall-pan by three-eighths of an inch. This prevents water accumulating on the wall-pan, and any rain which finds its way through the butt joints runs down the inside into the spout, and though there are no laps, the house does not leak in the wettest weather. In summer weather the front row of glass can be taken entirely out and Nottingham netting put in its place, or one or two panes can be taken out and the others separated. I frequently do this to harden plants previous to bedding-out.

The house runs east and west, but I should prefer to put it up north and south. I never use any shading, but after the first or second week in April put a slight wash of milk and whiting with a very little paste outside on the south side; this when once dry will resist almost any amount of rain, and breaks the scorching rays of the sun without interfering in any way with the light. I do not claim any particular novelty, but I have never seen any house exactly like it, and I built it for the sake of accommodating as many plants as I could, when potted-off, in a small space.

The house is only, as I stated, 25 feet long and 10 feet wide outside measure, but I can put 2500 Geraniums in 4-inch pots into it. I built it before I had seen any other house without laps to the glass or putty, and I still like the form of rafter better than any other I have seen, as by ploughing the groove at an angle and then taking a slight shoulder off with the chisel, a groove is left under the glass, down which any water which is drawn to the rafter runs, instead of dripping into the house. I have never seen any drip whatever from the rafter. I can recommend the house to any amateur who wishes to have a generally useful plant-house, and especially to those gentlemen who expect their gardeners to turn out large quantities of bedding plants, and who have hitherto provided no additional means. There is so much light and good ventilation in a house of this kind that I find, practically speaking, plants from it never require hardening-off. Another great advantage is, that the whole of the glass can be removed in a very short time for repainting or other repairs; and the paint can be laid on by any ordinary hand, as there is no glass to smear, and the work is consequently very quickly done.

I keep plants growing in a house of this kind all the winter, and I never find they get the least drawn-up or spindly. Damping-off and evils of that sort are unknown, unless there is no fire heat in November and December, when I maintain nearly all plants raised out of the open ground and potted-off in October must suffer if not allowed to grow. I find the same cry constantly repeated, "Don't water! Don't water! Don't let plants grow in the winter! All growth must be spindly and bad." I feel sure, however, that with properly constructed houses common sense will tell any gardener it is easier to preserve a plant in health by allowing it light and air, water and heat, than by keeping it stagnant in cold, and dark, and damp; and a little common sense and attention, which are the great secret of success in gardening, will soon teach gardeners what degree of warmth and moisture is requisite for the various tribes of plants. For instance, it would be absurd to treat a Calceolaria in the same way as a Geranium, or a Chrysanthemum in the same way as a Verbena; and yet I have seen Calceolarias in pots dust-dry, flagging from want of water, and been assured by the gardener that they were damping-off, instead of which they ought to have been put into a pail of water for half an hour.—C. P. Peach.

MRS. PINCE'S MUSCAT.

I was glad to see the notice of Mr. Donaldson's success with this Grape. I think it has been most unfairly run down. It has always done well with me, and was admired by hundreds this season. I think it requires a little care in setting. When in bloom my man always touches the flowers with a camel-hair brush, and every bloom sets. This is done on two or three different days with almost every kind of Grape, as I like to leave nothing to chance, and the trouble is very trifling. There are few kinds, except the Black Hamburgh, which do not benefit by this operation in some seasons, though in others they may set their fruit well without any trouble. The brush we use is as large as a painter's middle-sized painting brush, and the flowers are just gently touched with it to distribute the pollen.

With me Mrs. Pince is larger in the bunch than Lady Downe's, and keeps better. I think Madresfield Court is the best of the new Grapes, but it does not keep so well as I expected. It is a grand Grape both in bunch and berry, and of fine flavour; but it will not, I think, keep more than a month longer than a Black Hamburgh in the same house. If it does not keep so well as was expected, many will be found to deny its other good qualities. To be puffed absurdly, and afterwards run down unfairly, seems to be the fate of all new Grapes. After all, it is better for people to give their experience, as the special requirements of a variety may thus be elicited. A man may miss his way in the cultivation of a new kind of fruit without being exactly a fool.—J. R. Pearson, *Chilwell*.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Keep *Cabbage*, *Cauliflowers*, and *Endive* thoroughly clear of all bad plants and dead leaves. Sow in well-prepared situations the second crop of *Peas* and *Broad Beans*, a few of which should be sown in boxes, pans, or flower-pots for fear of frost or vermin. The Peas and Beans that have made their appearance above ground should have a short-toothed iron rake passed across the rows to break the surface-crust of the earth. A warm border should be chosen for sowing early *Horn Carrots* and short-top *Radishes* in neat drills, alternately. These drills may be formed by means of a triangular stick, and should be covered-in with sandy soil, and protected with such materials as hoops, mats, fern, &c. Sifted dry dust, charred tan, or any other charred refuse, should be shaken amongst them as they progress. It is astonishing what robustness and vigour this imparts, besides keeping out the frost and preventing shanking and cankering.

FRUIT GARDEN.

Proceed with planting. Prune and nail wall trees. Dress in suitable weather those fruit trees that are infested with moss, lichen, or scale. Prune, train, and tie-in neatly all espalier trees, and clear away to the char heap all refuse that will not readily decompose. Fork among all fruit plantations, applying some manure, if possible, about the roots of the trees. Where the nailing of Pear, Plum, and Cherry walls is finished, form and chop out the alleys at convenient widths, and fork up roughly the spaces left next the wall, spreading some sifted cinder ashes thinly on the alleys. This is the means of keeping the surface of the alleys from becoming bound by traffic, and makes them at all times clean and comfortable to walk on, but scrapers should always be placed at convenient distances. If frost prevails, stir up the soil well with the hoe, or fork close under the walls and fences. Such places afford a ready refuge for slugs and other vermin to hide away in security, and shake a little quicklime over the earth thus disturbed.

FLOWER GARDEN.

Make new walks, flower-beds, and renew the soil in old ones, if the weather permits. Holes for planting choice shrubs or trees may also be prepared, by removing the bad soil and replacing it by a compost suitable for the plants; and even where trees are planted and not growing well, the soil may be carefully removed from the roots and replaced by better material. Where any of the beds require fresh soil, it should be made ready to be wheeled on when favourable weather for such work occurs. Fresh soil is, in most cases, preferable to manure as a dressing for flower-beds, which is too invigorating. On poor soils, and where neither fresh soil nor decayed leaves can be had, a moderate dressing of well-rotted farmyard manure will, however, be useful, but this should be well mixed to the full depth of the bed, and not left in lumps near the surface. Avoid getting upon or working the ground when it is in a sodden state.

GREENHOUSE AND CONSERVATORY.

About 40° is a good temperature for the conservatory when not attached to sitting-rooms, and only used for the purpose of wintering large specimens without plants in bloom; but where a supply of stove plants in bloom is constantly kept up from a forcing pit, the best heat is 45°. Cinerarias should be watered and protected from the attacks of insects. Chinese Primroses are very ornamental, and ought to be cultivated.

In regard to soil, two parts rough leaf mould and one of well-decayed cow dung, with a little sand, suits them best, the whole being kept moist. Large plants of Rhododendrons or Camellias that have been some time in their pots or tubs, should receive weak tepid liquid manure. Forcing pits should now be in full activity to furnish plants in bloom. If required in sitting-rooms, care should be taken before they are removed there to gradually harden them for a day or two, either by placing them in the conservatory or intermediate house. Hyacinths should be protected by a frame as they begin to grow, remove the plunging material down to the surface of the pots to prevent them rooting upwards. Mignonette will require attention to keep it from damping. As all but forced plants are now quiescent, the temperature of plant houses should fall to the lowest point consistent with the safety of their various inmates, as nothing can be worse than a high temperature at this season. Keep up a regular succession of plants to bloom through the spring by bringing forward the stock of forcing plants as wanted. Roses, both dwarfs and standards, Honeysuckles, hybrid Rhododendrons, and Azaleas, with a host of other plants, will enable you, with the addition of the usual occupants of the house, to make a brilliant show through the spring. Hyacinths, Narcissus, Tulips, Lily of the Valley, and other plants of the above class, must be duly forwarded as required. Hardwooded plants will require a dry pure atmosphere to prevent mildew and damp.

PITS AND FRAMES.

Remember that in the absence of sunlight, plants increase by preying on the materials stored up in their system, and are thus injured as regards early flowering and compact habit of growth. Admit air freely amongst the plants in the pits and frames as long as the weather continues as it is, but be careful that the air is dry. Take advantage of bad weather to wash-up and arrange the stock of dirty pots, to paint any tubs, baskets, wires, &c., out of use. Prepare labels of various sizes, forked sticks for pegging-down plants in the flower garden; look over the stores, and provide whatever may be required for the season's use; also get in a supply of the various loams, peat, &c., required for spring potting.—WILLIAM KEANE.

DOINGS OF THE LAST WEEK.

KITCHEN GARDEN.

CONTINUED to dig, trench, and clean, and on a fine day hoed among some young Cauliflower, Spinach, Onions, and Lettuce, which last have hitherto stood well. As our first crop of Rhubarb had come in well, we placed some more in the Mushroom-house to form the third crop.

Trenching and *ridging* may be done during damp weather, but not when the ground is soaked with moisture. Some persons we know, thinking to give the roots a greater facility of penetrating, and hoping to secure a more uniform supply of moisture, have trenched down the good surface soil, and either turned up a hungry gravelly soil, or a hungry, unmanageable, marly clay. The surface soil in these instances was but from 10 to 14 inches deep, and in striving to get a moveable tilth of from 18 to 24 inches, they incurred a great deal of trouble and immediate loss. In a deep soil deep trenching is advantageous, but in a thin one a little of the subsoil must be brought up every year to increase the tilth. All heavily cropped ground should be recruited from the subsoil by mixing 1 inch of this with the surface soil, and loosening some 6 inches more, and letting it lie at the bottom. This last should be allowed to remain for two years, after which it may be made part of the upper soil, and the process repeated upon the new subsoil. It is better not to be in too great a hurry, or else in a rash moment you may trench too deeply, and make the ground utterly barren, as we have seen it ere now, when there is no remedy but re-trenching. Trenching or ridging-up very roughly has generally been thought to be the best preventive against snails and slugs, but we think that a smooth surface is more effectual in this respect.

Now is the time to prepare ground for Asparagus, Sea-kale, Rhubarb, and Onions. A sprinkling of quicklime, tar, or lime from the gasworks, if used early in winter, is very useful in keeping off the grub from Onions; but care must be taken to have all noxious fumes arising therefrom dissipated before sowing. We would not use dung for the ground in which we intended to plant, but rather lime. At the bottom of a piece prepared for Carrots we have placed a good coating from the rubbish heap, and should like to give it a lime-dressing if we could. In the case of too rich soils, lime has been applied with the most satisfactory results, since it acts on the manure so as to make it serviceable to the plants. I remember a case where the ground had become barren from excess of manurial matter. The stiff surface soil had 3 inches of the subsoil incorporated with it, was trenched and ridged, and over the whole, on a fine day, was strewed half an inch of quicklime, afterwards gently mixed with the soil. Before sowing, the ground was re-ridged and cross-ridged, care being taken to keep as much of the lime as possible near the surface. The result was one of the finest crops of Carrots I ever saw. Lime will be of little benefit to poor soils, as it consumes what little organic matter they do possess; but sandy soils will be improved by the application of lime, which in their case is only to be excelled by clay or marl.

FRUIT DEPARTMENT.

Have had some newly-emptied houses cleaned and lime-washed, in order to be ready for forcing. Pruning, planting, tying, and nailing are better done now than two months later. A few light half-inch boards will be found very useful in keeping the feet clean whilst pruning, and likewise in working among flower-beds in wet weather.

ORNAMENTAL DEPARTMENT.

A light wooden roller from 10 to 12 inches in diameter will now be found of great service. Turned up some flower-beds, and cleared away dead leaves. Some of our plants in houses are showing signs of ill-health, which is attributable either to the fumes of fresh paint or gas. I much prefer a lamp to gas, but if having the latter is unavoidable, burners with reflectors at the top of the roof, inside or outside, are next to be desired. Brought in more soil to be aërated and warmed, with which old Mushroom dung, also useful for top-dressing, may be mixed if it no longer contains any spawn. Earth for potting should not be too dry nor yet too wet. We are at present potting Pelargoniums, as they require thinning-out. We shall not again stop these, nor give them a very large shift for early flowering. Sandy fibrous loam, with a little decayed manure, will grow them well; but rather than put an excessive amount of manure, which causes too strong foliage, in the soil, use manure water to them when the flower-buds are set. A rich top-dressing is also very beneficial. In such dull weather use no more fire heat than is absolutely necessary, and give air according to the hardiness of the plants. In foggy or close weather give no more air than prevents the accumulation of vapour at the top of the house. Use water rather above the temperature of the house, and take care not to spill it about. —R. F.

TRADE CATALOGUES RECEIVED.

Dick Radclyffe & Co., 129, High Holborn, London, W.C.—*Catalogue of Vegetable, Agricultural, and Flower Seeds, &c.*—*Catalogue of Farm Seeds, &c.*

W. Bull, King's Road, Chelsea, London, S.W.—*Retail List of New Plants.*

J. Scott, Merriott, Crewkerne, Somerset.—*Catalogue of Fruit Trees.*

TO CORRESPONDENTS.

*** We request that no one will write privately to any of the correspondents of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely to The Editors of the Journal of Horticulture, &c., 171, Fleet Street, London, E.C.*

We also request that correspondents will not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, if they expect to get them answered promptly and conveniently, but write them on separate communications. Also never to send more than two or three questions at once.

N.B.—Many questions must remain unanswered until next week.

BOOKS (*R. D.*).—We do not know the publisher. We should probably be able to ascertain if you said who was the author.

SELF-ACTING FOUNTAINS (*J. R.*).—We are informed that they are manufactured by Messrs. J. Brooks & Son, Sheffield. They would pay for fully advertising.

VINE GRAFTS (*J. M. O.*).—Thanks for your obliging offer. We have not the variety you name.

ROYAL MUSCADINE VINE—SALT AS A MANURE (*H. Foy*).—Doubtless your Vine suffered from being shaded by the Black Hamburgh; but a young Vine seldom does well when planted in a border already occupied with other Vines. You would succeed better were you to inarch the Royal Muscadine on the

Hamburgh, and see that the young rods are fully exposed to the light to ripen the wood properly. Salt applied at the rate of half a peck to a rod of ground will be of much benefit to vegetables, and also to your flower border.

Planting Vines (*Ignoramus*).—You purchased fruiting and not planting Vines. Canes such as you describe would carry a crop of fruit next season. If you plant them as permanent Vines, cut them back to 9 feet at once, and plant them out in March. When the buds are fairly started rub off all except two or three at the base; these you must train up to the apex of the roof. Pinch all lateral shoots at the second leaf. As your house is span-roofed, why not plant on both sides? If you cannot do this, then you must train the young rods over from one side to the other. The second year, if the Vines have done well, they will bear a light crop of fruit—from two to four bunches on each rod. As soon as the leaves have fallen the canes should be cut back, the weakest to 8 feet, and the strongest to 6 feet from the bottom of the rafters. If your house is used as a greenhouse in summer, the Vine rods should be 5 feet 6 inches apart; if used only as a vinery, 2 feet 9 inches is the proper distance.

Planting Vines and Making Vine Border (*Philip Barker*).—We would not make an outside border the first year, and only half of the inside one, making up the other half inside at the end of the second year; two years after this we would add 6 feet to the outside. "A barrier of slates" would not prevent the roots from running through to the back wall. It would require a brick wall on a solid foundation. You could manage it by raising a wall of turves as you filled-in the new border, and leaving an open space between this and the old soil. Vines will do no good on the back wall after the roof is covered with bearing wood. Six plants will be sufficient for a house 30 feet long, two rods trained up from each plant; it will leave them 2 feet 6 inches apart, which is as close as they ought to be.

Iron Pipe for Flue (*Flue*).—We are sorry we cannot help you much All iron pipes used as flues are apt to have this dark sticky fluid formed on them in exact proportion to the dampness of the weather and the fuel. Sometimes, but not so often, it appears on brick and earthenware tube flues. We advise you to burn some dry wood in the furnace to dry up the condensation, and then use fuel in a drier state than usual. It would also be well to have a short pipe at the lowest level to slip over the ends of the other two, and by taking this off or slipping it along you could clear out the matter by a pole or small hoe.

Pit Converting to Propagating House (*A Young Beginner*).—We have no doubt the plan you propose would answer well, but you must have means to let the heat rise to warm the air of the house. If you have tanks on the flue, you would need corks attached to small rods to show when the tanks were full. We have very lately described the modes of doing all this with a flue. As you mean to retain the flue, this is the way we would do it:—Instead of the pit of 7 feet in width, 7 feet high at back, and 3 feet high in front, we would sink the pit 6 inches more, run a 4-inch wall, with piers of 9 inches, 2½ feet from the back wall, raising that to within 3½ feet of the glass. That would form your pit. Then take a 9-inch flue through the middle of it; brick-on-hed for a yard from the furnace, brick-on-edge the rest of the distance, and carry it back in the pathway, the top of the flue forming part of the pathway. You would thus command bottom and top heat without any trouble. All round the flue in the bed we would pack clinkers and brickbats openly, and cover them and a few inches over the flue with smaller stones, and then fine gravel. On each side of the flue have upright drain pipes, so that you can damp the stones and rubble, not the flue, and have plugs of wood for these upright pipes. Four or five of the uprights should stand on each side, and the base end should rest on a slate, so that the water might be dispersed over the stones. Adiantum farleyense should seldom be in a temperature below 60°.

Where to Move to (*A Yorkshireman*).—As you have spent four years at nursery work, we think that you had better remain at that than prepare for holding a place as a gentleman's gardener, in which case you would have a good deal to learn. Much, however, depends on your own feelings with regard to the subject. An intelligent temperate man will command good wages in a nursery when his character and capabilities are fully established, and he may ultimately set up business for himself. At all events, he will be able to act more independently than if he were a gentleman's gardener. Nevertheless, in the latter case, though not free from drawbacks, he will have no trouble with money affairs—one of the most disturbing circumstances to many when they first commence business.

Cucumber (*Vegetarian*).—Write to Messrs. Rollisson, Tooting.

Distinctive Characters of the Rose Classes (*An Inquirer*).—Your query is not easily answered. Many florists place a Rose in different classes, and many would be puzzled if asked to state the characters of some of the classes. If any of our great Rose-cultivators will furnish us with the distinctive characters of the Provence, Bourbon, Noisette, Hybrid Perpetual, and other classes, into which florists divide Roses, we and many of our readers will be much obliged.

Colour of Peas (*H. C.*).—The colour of Peas is reckoned from their condition in a dry state, the white, as a rule, being the smallest, and of a paler colour when boiled than blues, which are also of better flavour. The green are good in colour when cooked. The blue and green are generally better croppers, but this does not invariably hold good, as some of the whites are excellent both as regards cropping and quality.

Stopping Pelargoniums (*A Young Exhibitor*).—For flowering in June stop them early in February, and the Fancy sorts at the same time. Your treatment is correct.

Small Birds Attacking Buds (*Constant Reader*).—Dress them with a mixture of lime and soot, brought to the consistency of paint by adding 2 ozs. of soft soap to a gallon of water. This should be done about February, and is also a good preventive of insect pests. We have found it also desirable not to prune until the buds have begun to swell. We have found black worsted or cotton stretched from branch to branch, so as to form meshes about 3 or 4 inches wide, keep off birds when other means failed. Strips of glass about 3 inches long and 2 wide, blackened on one side, suspended from the shoots, are useful for scaring them.

Electricity (*J. Wilson*).—It will not make plants grow without warmth &c., nor can we without diagrams explain how you could make a galvanic battery.

Names of Fruits (*J. D. Gillingham*).—2, Chaumontel; 2, Beurré Langelier; 4, Fearn's Pippin; 6, Cowarne Queening; 7, Pile's Russet.

Names of Plants (*A Ten-years Subscriber*).—Your Oncidium sent last week appears to be O. altissimum. (*Mr. H. Durlin*).—Pellæa adiantifolia. It is not a climbing species. The frond sent is quite exceptional in having its rachis curved.

POULTRY, BEE, AND PIGEON CHRONICLE.

THE OLD AND THE NEW YEAR.

We have somewhat varied our routine. Formerly we addressed our readers on the last number of the old year. The retrospect is not so cheerful as the anticipation. We had to do with the past, and now we are disposed to draw on the future. The latter is always gilded, the former has suffered from wear and tear. The past is somewhat stale, flat, and unprofitable; the future

"Hails in its heart the triumphs yet to come."

Yet we would not discard the past; it tells us of another prosperous year, of old ties still unbroken, of constantly-recurring names that are "familiar in our mouths as household words," and we trust that they, like ourselves, are grateful that we are spared to hail the advent of Eighteen Hundred and Seventy-two. We have had halcyon days. We have glided down the past fifty-two weeks with few, if any, storms, and our bark enters the port with canvas undamaged, and with a tried and trusty crew.

Some remarks on the past may be expected, and we shall not withhold them. As faithful chroniclers we will briefly notice those things with which we have been brought in constant contact.

Dorkings have remained stationary as regards weight, but it must be recollected there is a limit to everything. In the last few years they have increased (we speak of exhibition birds) from 2 to 3 lbs. each. They still form one of the largest classes at shows, and they sell readily. The fault we have to point out is the prevalence of spurs outside instead of inside the leg. This should be avoided. In this, as in many other breeds, although size is a great desideratum, it must not be gained by the sacrifice of other properties.

Spanish make no progress either in numbers or quality. They are not equal to those we had years ago, nor are they so distinguished for those merits that amateurs look for. We should be sorry to see a marked decadence in these beautiful fowls. They are the townsman's birds. Their constitution is of iron; they will live in any space however confined, and when eggs are sold, as they should be for general purposes, by weight, they will tell their tale in the balance-sheet. It is true they are not sitters, but few dwellers in towns have convenience for rearing chickens.

Our good old friends the Cochins increase and prosper; they deserve it. No fowl has kept the word of promise more than these have. They never ail anything, their chickens are hatched as hardy as young crocodiles, they are not wanderers, and they do not easily take offence. The pullets lay at an earlier age than almost any fowl; and as it no longer costs a good hunter, or a six-roomed cottage replete with every convenience, to buy a cock and hen, we are not surprised that they are extensively kept. Viewed as show birds, they have not been kept to the standard of former years. The hideous vulture hock has been overlooked, or allowed to be palliated by a little extra feathering on the leg or middle toe. A mealy wing in a cock has been declared an abomination, while stained hackles in pullets have been allowed to pass unquestioned. It was the work of years to get rid of the marked hackle, but the vulture hock was unknown till recently. Many thousands of birds, faultless save for the hock, have been, and still are, killed every spring.

These remarks will in some measure apply to the next review, that of the Brahmas. These birds have at last outlived all opposition, and now form the large class at most exhibitions. They are truly valuable fowls, ridiculously hardy, careless of confinement, moderate eaters. The facility with which they are bred to resemble each other in every particular point, has long since disposed of the idea they were a composite breed, or an offshoot of the Cochins. If we were asked for a fowl calculated to live and do well in any place or under any circumstances, we should certainly name the Brahma.

The beautiful Polands have been shown in larger numbers during the past year. The Silvers have been especially remarkable for their high merit. Game have been everywhere perfect. Some critics complain they are now bred too long in the leg, but we cannot help thinking they are very perfect, and

we shall, we believe, be in strict order when we express our opinion that no other class shows so many faultless birds. The exhibitors seem to understand their birds, and the condition in which they are sent proves it. Many of the old varieties that were commonly seen thirty years ago have almost disappeared, and the large entries are made up of Black Reds, Brown Reds, and Duckwings. These last are the weakest, and do not keep pace with the others. Hamburghs barely hold their own. The Silver-pencilled have certainly deteriorated. The Golden in both Pencilled and Spangled classes have been superior to the Silver. The French breeds may have something to do with this. They lay almost as many eggs, and they lay them much larger. The Houdans and Crève-Cœurs are good birds. They are excellent for the table, and are very hardy. Their fellow breed, the La Flèche, finds few admirers. We are not surprised; they have not good constitutions. We believe the two former will make large classes, but we do not think the latter will ever bring a sufficient number of entries to pay for the prizes offered.

A revolution has almost taken place in Bantams. The once-popular and numerous Sebrights are fast disappearing. It is rare to see a dozen pens of them, even at the largest shows, and unless some one come to the rescue and keep up the manufacture of them, it will be difficult to keep them fair specimens of these beautiful birds. The Blacks and Whites, taken as a whole, have hardly been as good as formerly, although some very good pens have been shown. All the energies of Bantam-breeders appear to be centred in the Game. They not only show in large numbers, but their quality leaves nothing to desire. We have the Black Reds, Brown Reds, Duckwings, and Piles. They do not confine themselves to feather, but they faithfully produce the Game cock in all his points. In the varieties of Bantams, some introduced from Japan a few years since show in tolerable numbers. The Cochin Bantams would appear to be difficult to breed, for although a ready sale at very good prices awaits them, yet they do not increase in numbers. There are also Cuckoo Bantams, and we are promised some Dorkings for next year.

If we may believe the entries at the different shows, the Aylesbury Ducks are losing ground, compared with the Rouens. These latter are heavier and far more numerous. It would be a great mistake if the former were allowed to degenerate. They have properties few others have, they lay very early, and they fatten at an age when others are only beginning to grow.

Geese have been shown well, and the birds have been very heavy. We have no average increase to mark as compared with last year, but it must be borne in mind that the weight of these birds has more than doubled in the last twenty years. Everywhere the increase in the numbers of Turkeys entered for competition has increased, and so has the weight of the birds. The Americans have lost somewhat of the beautiful plumage they had, but they have gained largely in weight.

It has been a harmonious year. There have been no great questions of division among the followers of this healthy and humanising pursuit. Judges have been indulgently treated by those who judge their awards. They are only now and then attacked. It is admitted by many that at even some of our largest shows they have little light and less time. Some of the critics remind us of Mr. Boatswain Chucks, inasmuch as they begin by all sorts of little amenities, and end by an onslaught. "To every man his opinion." We have endeavoured, and we shall continue to do so, to practise the strictest impartiality. We rejoice to believe that the line we have adopted meets with the public approval and support. We are not unmindful of the obligations we are under to our many readers. We tender them our hearty thanks. Endeavouring to realise the ties that bind us to all interested in our weekly issue, we say to every one of them in the fullest sense of the words, May they have

A Happy and Prosperous New Year.

WOLVERHAMPTON AND PORTSMOUTH SHOWS.

I observe that the Wolverhampton and Portsmouth Shows clash with regard to date, or, at least, exhibitors cannot exhibit the same stock at both. Now that is to be regretted, as both schedules offer liberal prizes, and I have no doubt they would each have a very good show if it were not for their being advertised to take place at nearly the same time. I should think that the Portsmouth Show could be held a week later, and the date for entries to close could also be later. A special advertisement might be inserted as to change of date. To prevent poultry being sent at the date originally advertised, a printed post card could be sent to all those who entered up to 25th January, which is the date given for entries to close.

I am aware that this will cause trouble and expense, but I think the entries would be far more numerous and so make up for this. I feel sure the Committee will not mind that, as long as they can bring the Show to a successful issue. If anything in the matter can be done, it must be done at once.—One that would like to exhibit at both.

SELLING CLASSES—A SELLING SHOW?

The remarkable success of the selling classes at the Crystal Palace proves to my mind that they supplied a want keenly felt by both breeders and buyers of good poultry; and the quality of many of the birds also demonstrated conclusively that moderate prices do not forbid the entry of really fine specimens. But, in common with many others, I confess I was strongly struck with the absurdity of the whole affair as at present managed, and especially as it bore upon the character of the judging. I conversed with both the Judges, and both fully agreed with me as to the utter impossibility of awarding any moderate amount of prizes in such varied and immense classes. Even with regard to mere numbers, it may be sufficient to state that one class numbered 126 entries, sufficient for three classes at least; but beyond this, when all breeds are thus jumbled together, how is it even possible that anything in the shape of judging can be done amongst birds in such ludicrous variety? As one of the gentlemen upon whom the enviable task devolved remarked to me, "When a man comes to me and complains, 'Why haven't you given me a prize? Arn't my Bantams as good as Mr. So-and-So's Cochins?' What can I say to him? Perhaps they are as good, but how can I compare two breeds so totally dissimilar?" Anyone can see the reasonableness of this complaint; and considering how these giant classes swell the coffers of the Show, not only through entries, but from the commission on sales, it becomes absolutely necessary in common fairness to all parties that a remedy should be found. I would suggest that each class might be subdivided as follows:—Large Asiatic breeds—to include Malays, Cochins, and Brahmas; table breeds—to include Dorkings, French fowls, &c.; other breeds not Bantams; and Bantams to have a class to themselves. Other general classifications might be substituted; but I am well convinced that without some such remedy as I have suggested for a really crying evil, this interesting feature of the Crystal Palace Show will "go down."

But the success of these classes has suggested to me whether even they have supplied a want, which is so evidently felt, of procuring on the spot birds of really good quality at moderate prices. I do not think they have, and I do not think they ever will while the prices are so low. As a rule, I know by experience, that reliable stock birds cannot be bred and sold for two guineas—they cost more than that to produce. At all events the question set me thinking, the consequence of which has been a new idea, on which I should like the opinions of some readers of this Journal. It is, that it would be a good thing to have a Great Selling Show, some time near the end of the season, at which the limit of price should be five guineas for single cocks, and six guineas for pairs of birds; the prize birds to be sold by auction, and any excess divided as usual; the other pens to be claimed, with the usual precautions against owners claiming their own.

I believe whoever first takes up this plan will make a good profit by it; and I may suggest that it would accomplish many desirable ends. In the first place, while these prices would, in my judgment, be quite low enough to meet the views of fanciers, I have no doubt there would be no want of good birds. In the second place, at the end of the season owners would have a good chance of clearing off much stock, without the "alarming sacrifice" our present selling classes often involve; and the classes would be filled by real breeders sending good birds. In the third place, such a show would provide the field, which a recent correspondence seemed to desire, in which fairly good birds might make a good fight without the dread of being outdistanced by the champion birds of the year; and this object would be obtained without the evils of handicapping or the other plans then suggested. Lastly, at a price moderate, and yet enough to repay breeders for producing them, really valuable stock might be secured.

I may, perhaps, say that I have named this idea in private to many experienced fanciers, all of whom have received it

favourably; and I believe that if fairly carried out such a show would be a feature of the year. But it is because I think it would serve a really useful purpose, that I propound it to the fancy at large.—L. Wright.

EXCLUDING DEALERS FROM EXHIBITING.

I have been waiting to see an answer to Mr. J. Ashworth's letter in your number of December 7th, in which he advises secretaries and committees of poultry shows to exclude all dealers, but no one having answered it, I ask space for a few lines. There are many societies formed, and many forming for the purpose of comparing birds, and for friendly competition amongst members only, and I believe in all cases the rules are very strict against admitting dealers. Now, if Mr. Ashworth will join these, it will do away with his objection to compete against dealers. At the same time I should be very sorry, and I am sure many others would be sorry, to see them excluded from our large shows, as by doing so we are robbed of half our victory when we win, for we could not but feel that our success was only partial when all were not allowed to compete.

The object of all large shows, such as Birmingham, the Crystal Palace, Manchester, is to bring together the best birds in the kingdom; this would be frustrated were Mr. Ashworth's advice acted on. He says, "Fanciers may buy the best birds dealers have at very high prices, and at the very next show the same dealers beat them completely." Considering he writes in the interest of real fanciers I think his letter a contradiction. Real fanciers do not buy birds to win. What credit is it to give, say, £20 or £30 for a pen of birds to win? The great pleasure and credit is when you can say, "I obtained those birds by careful breeding, and did not buy other people's work and experience to win." I am sure Mr. Ashworth does not object to be beaten with better birds than his own. I always feel pleasure in seeing birds superior to what I possess. It is a very difficult matter to say who are dealers and who are not. A dealer is one who buys and sells—do we not all do so? —Frank Graham, *Birkenhead*.

AMALGAMATION OF COLUMBARIAN SOCIETIES.

For the last ten or twelve years I have taken a leading part in getting up Pigeon shows, but latterly have been inclined to give them the cold shoulder, from a doubt arising in my mind whether open competitions were productive of good or very great harm. When Pigeon shows were first introduced the committees were formed of enthusiastic fanciers—business men, as a rule—glad to have a little relaxation from the worry of warehouse labour, and perhaps indulging in their youthful fancy, when the memory of boyhood and their "first pair" reproduced a pleasure they would fain realise again, by giving themselves and other fanciers an opportunity of meeting with each other, and in a friendly and honourable spirit innocently competing their birds. Now we find that this sort of competition has greatly verged into a complete mercantile speculation, and accompanied by all sorts of trickery and deception, by combinations and other unfair means, so that every society must now feel their labour, their time, and their money, is worse than thrown to the dogs. Changes have been made year after year in the hope that a better spirit of competition would ensue, but again and again the same sickening reflection after it has passed; and we find, as before, the bulk of the prizes have been carried off by some exhibitor, who, making it his business, enters one hundred birds, or may be more (though not always in his own name), and gives his whole time and mind to making it pay. We too frequently find an amount of deception practised, so artistically executed that from our best judges, not having the time necessary to detect it, the money goes. Medals, cups, and such like, are not wanted; "Money I want, never mind the medal," is the invariable request of the speculator. Can there be no alteration made to prevent our competitions going down altogether? for assuredly they will if carried on in this way, when the continual cry of these exhibitors is, "Give us larger prizes." "Do not charge so much entry money." "Those who get up shows should not exhibit, at all events, should not compete," and so forth. Again, however, the old feeling returns when a new idea is suggested by "A Columbarian"—the amalgamation of Columbarian Societies. This, I firmly believe, would answer the purpose, and I have no doubt "A Columbarian" will secure the gratitude and co-operation of all true-hearted fanciers to carry his new idea into effect, which having been seconded by "West Riding," I trust will be immediately acted upon; and if a preliminary meeting be requested of all secretaries who favour such a scheme, I have no doubt a very warm response would be the result.—A Willing Helper.

MANCHESTER POULTRY SHOW.

For eleven years past the Manchester Show has been held at the Belle Vue Zoological Gardens, and annually increasing in public estimation, has now become one of the most important meetings in the kingdom. The hall it which it takes place is not to be surpassed by any other building in the country. Though warmed artificially, the ventilation is perfect, the light amply sufficient and well-diffused, and the feeding of the birds and general attention such as must give entire satisfaction to even the most fastidious exhibitor, whilst it is impossible to speak too highly of the unvaried attention paid to the poultry. The Messrs. Jennison, who are the proprietors of the Gardens, having had a lifetime's experience in keeping in perfect health valuable animals among their own large collection, feel quite at home in all that relates to the proper attention necessary to a poultry show, even in case of any unexpected illness or misadventure arising to any of the highly esteemed birds entrusted temporarily to their care. There is not a doubt that a considerable number of the best pens of poultry on view, evidently almost exhausted from over-exhibition, will leave the Manchester Show in far better condition to that in which they were received at the time of admission. Indeed, it is very probable, not a few pens that actually were sent on from the Edinburgh Show to Manchester, would have succumbed altogether to this overtax on their powers but for the prompt and efficient treatment adopted by the managers at Belle Vue.

It is long since we saw so splendid a collection of all the leading descriptions of poultry as that exhibited on the 28th, 29th, and 30th of December. Grey *Dorkings* were an immense entry, many being shown in beautiful condition; but beyond question the hens and pullets were, as classes, superior to the male birds. Silver-Grey Dorking cocks were not true to feather, having partially white tails partially pulled, to prevent the eyesore being visible. The hens were excellent. Never were better classes of *Cochins* seen than on this occasion, but very many were quite beaten by continuous travelling and consequent hardships. The hens appeared, however, to struggle through these difficulties better than their male companions. Buffs, White, and Partridge-feathered hens of the highest character were abundantly shown. As to *Spanish* fowls, most certainly there has not been so good a collection as this brought together during the recently-ended year. Buyers for the best of these classes purchased extensively, and we have little doubt their speculation will prove a most remunerative one. The Dark *Brahmas* were really good, but many had been too much shown previously to hold their own in competition with birds fresh from the breeders. Light Brahmas, on the contrary, fell behind in quality and style, and excited but little public interest. *Game* fowls, Brown Reds and Black Reds more particularly, were one of the great features of the Show, and it will be seen by the prize list new names are becoming prominent. The Game fowls, almost without exception, were in exquisite condition. It is a remarkable fact that the *Game Bantams* were shown in very inferior health and plumage, or as a visitor very graphically observed when looking at them, "they seemed all worked out." The *Houdans* and *Crève-Cœurs* were most important and well-filled classes, far surpassing any previous show held in this district. *Hamburghs* were best in the Spangled varieties, and perhaps the Black ones are equally worthy of mention. All the *Ducks*, *Geese*, and *Turkeys* were of the most perfect character, and the fancy *Waterfowl* class embraced three pens of Whistling Ducks, as many Mandarins, and the like number of Ruddy Shell Ducks, Carolinas, as well and the like number of Ruddy Shell Ducks, Carolinas, as well as a variety of other interesting breeds. In cases where great merit was general the Messrs. Jennison, with their customary liberality, permitted extra prizes to be awarded, and no doubt in such cases an improved prize schedule in futnre years will result.

Dorkings (Coloured except Silver-Grey).—*Cock.*—1, J. White, Warlaby, Northallerton. 2, Miss Davies. 3, W. Harvey, Sheffield. *hc*, Hon. W. H. W. Fitzwilliam, Rotherham; T. Statter, Manchester; H. Yardley, Birmingham. *c*, Rev. J. G. A. Baker, Biggleswade, Beds. *Hens*—1, W. W. Ruthidge, Kendal. 2, J. White. 3, J. Martin. *hc*, Rev. G. Hasler, York; W. Arkwright, Chesterfield; W. Copple, Prescot, Lancashire; G. Whitcombe, Puffley, Gloncestershire. *c*, J. Copple, Prescot, Lancashire; J. White.

Dorkings (Coloured except Silver-Grey).—*Cockerel.*—1 and 3, N. Russell. 2, J. White. *hc*, W. Arkwright (2); N. Russell (2); Rev. J. G. A. Baker (2); J. Martin. *c*, N. Russell, Brynegwyn, Oswestry; Miss Davies, Chester; J. Robinson, Garstang; J. Copple; W. Copple; W. W. Ruthidge. *Pullets*—1 and 2, W. Arkwright. 3, Rev. J. G. A. Baker. *hc*, Miss Davies (4); A. Darby, Bridgnorth; J. White; J. Copple; W. W. Ruthidge.

Dorkings (Silver-Grey).—*Cock.*—1. T. Raines, Stirling. 2, J. L. Lowndes, Aylesbury. 3, R. D. Holt, Windermere. *hc*, T. L. Jackson. *Hens* or *Pullets.*—1, R. D. Holt. 2, T. Raines. 3, W. W. Ruthidge. *hc*, J. C. Cooper, Limerick; R. D. Holt.

Dorkings.—*Rose-combed.*—1, D. Parsons, Preston. 2, Miss Fairhurst, Ormskirk. 3, J. Robinson. *hc*, Hon. D. H. Finch, Leamington Spa; H. Frankland, Accrington.

Spanish.—*Cock*.—1, R. Teebay, Preston. 2, Burch & Boulter, Sheffield. *hc*, J. Mansell, Longton. *Hens*.—1, R. Teebay. 2, Burch & Boulter. 3, Boulton and Gliddon, Bristol. *hc*, H. Beldon, Bingley, Yorkshire; Mrs. Allsopp, Worcester.

Spanish.—*Cockerel*.—1, Mrs. Allsopp. 2, R. Teebay. 3, H. Beldon. *hc*, Hon. Miss D. Pennant, Penrhyn Castle, Bangor; W. R. Bull, Newport Pagnell. Bucks (2). *c*, R. Teebay; J. Mansell; Hon. Miss D. Pennant; W. R. Bull. *Pullets*.—1, Hon. Miss D. Pennant. 2, R. Teebay. 3, Boulton & Gliddon. *hc*, T. P. Wood, Chesterfield.

Cochin-China (Cinnamon and Buff).—*Cock*.—1, W. A. Taylor, Manchester. 2, H. Lacy, Hebden Bridge. 3, T. Stretch, Ormskirk. *hc*, H. Lloyd, jun., Birmingham (2); W. A. Taylor; H. Yardley; J. Sichel, Timperley. *c*, T. Bracegirdle, Sale, Cheshire. *Hens*.—1, H. Lacy. 2 and 3, W. A. Taylor. *hc*, H. Lloyd, jun. (2); H. Lacy (2); A. Bamford. *Pullets*.—1, W. A. Taylor. 2, Mrs. Allsopp. 3, J. Sichel. *hc*, W. Sandy, Radcliffe-on-Trent, Notts; T. Stretch; W. A. Burnell, Southwell, Notts. *c*, T. Bracegirdle.

Cochin-China (Brown and Partridge-feathered).—*Cock*.—1, T. Stretch. 2, Mrs. Allsopp. 3, J. K. Fowler, Aylesbury. *c*, E. Tudman, Whitchurch, Salop; J. A. Taylor, Manchester; R. White, Shirebrook, Sheffield. *Hens*.—1, J. A. Taylor. 2, C. W. Brierley, Middleton. *hc*, E. Tudman; J. Friar, St. Helens. *Pullets*.—1, W. A. Taylor. 2, T. Stretch. 3, E. Tudman. *hc*, J. K. Fowler.

Cochin-China (White).—*Cock*.—1 and 2, J. Sichel. *c*, R. S. S. Woodgate, Tunbridge Wells; Rev. H. Lucas, Stamford; J. Mashiter, Ulverstone. *Hens or Pullets*.—1, J. Sichel. 2, J. Mashiter. *hc*, R. S. S. Woodgate; E. Fearon, Whitehaven; Rev. H. Lucas (2).

Brahma-Pootra (Dark).—*Cock*.—1, H. Lacy. 2 and Extra 4, T. F. Ansdell, St. Helens, Lancashire. 3, W. A. Taylor. *vhc*, J. S. Tainton, Gloucester. *hc*, W. Arkwright; Mrs. Bailey, Longton, Staffordshire (2); S. Burn, Whitby; J. Walker, Staffordshire; M. Hargreaves, Manchester; Hon. Miss D. Pennant. *Hens or Pullets*.—1, H. Lacy. 2, E. Pritchard, Wolverhampton. 3, W. Arkwright. Extra 4, T. F. Ansdell. *hc*, T. F. Ansdell (2); J. S. Tainton; R. B. Wood, Uttoxeter; J. Watts, Birmingham; Hon. Miss D. Pennant; E. Alder, Derby; W. Whittaker, Belper (3); H. Lacy; J. Sichel. *c*, E. Leech, Rochdale.

Brahma-Pootra (Light).—*Cock*.—1, W. T. Storer, Brewood, Staffordshire. 2 and 3, M. Leno. *hc*, W. Hartley, Halifax; R. Fulton, Deptford. *c*, Capt. Downman, Kingstown. *Hens or Pullets*.—1, J. R. Rodbard, Bristol. 2, J. Pares, Guildford. 3 and *hc*, M. Leno.

Polish (Any variety).—*Cock*.—1, G. C. Adkins, Birmingham. 2, H. Beldon. 3, J. Scotson, Newton-le-Willows. *hc*, W. Silvester, Sheffield; G. C. Adkins; W. Harvey; W. Fearnley, Newton-le-Willows. *Hens or Pullets*.—1, G. C. Adkins. 2, H. Beldon. 3, W. Harvey. *c*, G. Speedy.

Creve-Cœur.—1, J. Sichel. 2, W. Blinkhorn, St. Helens. 3, R. B. Wood. *hc*, Mrs. J. Cross, Brigg, Lincolnshire; C. H. Smith, W. Blinkhorn; J. K. Fowler. *c*, W. Dring, Faversham, Kent.

Houdans.—1 and 3, R. B. Wood. 2, W. O. Quibell, Newark. *hc*, Mrs. J. Cross; W. Dring; Mrs. E. Wilkinson, Manchester (2); J. Sichel. *c*, J. K. Fowler; D. Lane, Hardwick, Gloucester.

Game (Black-breasted Reds).—*Cock*.—1, J. Forsyth, Wolverhampton. 2, C. Chaloner, Chesterfield. 3, G. Bagnell, Draycott, Staffordshire. *hc*, Hon. Mrs. Colvile, Burton-on-Trent; G. Bagnell (2). *c*, J. H. Salter, Kelveden, Essex. *Hens*.—1, T. P. Lyon, Liverpool. 2, W. J. Pope, Biggleswade, Beds. *hc*, W. Ormerod, Tormorden; G. Bagnall; J. H. Wilson, Whitehaven. *c*, E. Brough, Leek.

Game (Black-breasted Reds).—*Cockerel*.—1, S. Matthew, Stowmarket Suffolk. 2, C. Chaloner. 3, J. Douglas, Worksop, Notts. *hc*, S. Matthew; W. Higgins, Ulverstone; S. Beighton, Southwell, Notts. *Pullet*.—1, C. W. Brierley. 2, S. Matthew. 3, E. Clavey, Burton-on-Trent. *hc*, W. Ormerod; J. Forsyth; W. J. Pope (2); C. Chaloner; G. Bagnall.

Game (Brown and other Reds, except Black-breasted).—*Cock*.—1, J. Wood, Wigan. 2, G. F. Ward, Wrenbury. 3, C. W. Brierley, jun. *hc*, J. Bowness, Manchester; J. Hodson, Bradford, Yorkshire; C. W. Brierley; Galley and Willett, Nantwich. *c*, T. Statter. *Hen*.—1, C. W. Brierley, jun. 2, C. W. Brierley. *hc*, J. Wood; T. Mason, Green Ayr, Lancashire; E. Mann, Manchester; F. Sales, Doncaster.

Game (Brown and other Reds, except Black-breasted).—*Cockerel*.—1, J. Bowness. 2, C. W. Brierley, jun. 3, W. Sowerbutts, Nantwich. *hc*, W. Dunning, Salop; J. Wood; E. Mann; C. W. Brierley. *Pullet*.—1, J. Carlisle, Skipton. 2, W. Boulton, Dalton-in-Furness. 3, J. Bowness. *hc*, G. F. Ward; T. Mason; C. W. Brierley; E. Mann. *c*, T. P. Lyon; J. Mashiter (2.)

Game (Duckwings and other Greys and Blues).—*Cock*.—1, Morris & Woods, Accrington. 2 and 3, S. Matthew. *hc*, C. Chaloner; J. Frith, Chatsworth; J. Mashiter. *Cockerel*.—1, C. W. Brierley. 2, S. Matthew. 3, C. Travis, Sheffield. *hc*, W. Ormerod; E. C. Gilbert, Penkridge, Staffordshire. *c*, S. Matthew; Hon. and Rev. F. Dutton. *Hen or Pullet*.—1 and 2, E. Hall, Chesterfield. *hc*, J. Douglas; Hon. and Rev. F. Dutton; G. Noble, Dewsbury; F. Sales.

Game (Any other variety).—*Cock*.—1, C. W. Brierley. 2, C. W. Brierley, jun. *hc*, Capt. W. G. Webb, Tamworth; T. Thompson, Lancaster. *Hen or Pullet*.—1, C. W. Brierley, jun. 2, W. S. Bickershaw, Wigan. *hc*, C. W. Brierley; N. Russell; J. Stabler, Driffield. *c*, G. Draycott.

Ducks (Rouen).—*Drake*.—1, T. Wakefield, Newton-le-Willows. 2, A. Dickinson, Whitehaven. 3, T. Burns, Wigan. *hc*, Miss Davies (3); J. K. Fowler; T. Wakefield; T. Statter (3). *Ducks*.—1 and 2, T. Wakefield. 3, T. Statter. *vhc* and *hc*, J. Scotson.

Ducks (White Aylesbury).—1 and 3, E. Leech, Bury St. Edmunds. 2, J. K. Fowler.

Ducks (Black East Indian).—1, G. Sainsbury. 2 and *hc*, S. Burn.

Ornamental Waterfowls.—1 and 3, M. Leno (Mandarins and Viduata Whistling Ducks). 2, Rev. H. Lucas (Ruddy Shield Ducks). *hc*, N. Russell (Mandarins); H. B. Smith, Preston (3); M. Leno (Carolinas); C. W. Brierley (2).

Geese (White).—*Gander*.—1, Rev. G. Hustler. 2, J. K. Fowler. 3, E. Leech. *hc*, R. & W. Rostron, Manchester; T. Statter, jun. (2). *Geese*.—1, E. Leech. 2, J. & W. Rostron. 3, J. K. Fowler. *hc*, T. Statter, jun.

Geese (Grey and Mottled).—*Gander*.—1, J. K. Fowler. 2, J. C. Cooper. 3, S. H. Stott. *hc*, M. Kew, Oakham, Rutland. *Geese*.—1, E. Leech. 2 and *c*, S. H. Stott, Preston. 3, J. K. Fowler. *hc*, J. C. Cooper.

Turkeys.—*Cock*.—1, F. Lythall, Banbury. 2, R. Hardwick, Bridgenorth, Salop. 3, E. Leech. *hc*, Mrs. Garnett, Lancaster; J. B. Braithwaite, Northallerton; E. Leech. *Hens*.—1 and 3, E. Leech. 2, F. Lythall. *hc*, R. Hardwick; F. E. Richardson, Uttoxeter.

Any Variety.—1, Hon. W. C. W. Fitzwilliam (La Flèche). 2, H. Frankland (Cuckoo Cochins). *hc*, Rev. N. J. Ridley, Newbury (Malays); E. Fane, Leadenham (Pekin Bantams); W. G. Holt, Middleton (Cuckoo Cochins).

Hamburgh (Black).—*Cock*.—1, Rev. W. Serjeantson, Shrewsbury. 2, T. Walker, jun. 3, H. Beldon. *hc*, Rev. W. Serjeantson; D. Lord, Stacksteads; C. W. Brierley; H. Hoyle. *c*, T. Walker, jun., Denton; H. Hoyle, Newchurch. *Hens or Pullets*.—1, T. Walker, jun. 2 and 3, Rev. W. Serjeantson. *hc*, T. Warburton, Tottington Bury; D. Lord (2); J. Garside, Slaithwaite; T. Walker, jun. (2); J. M. Kilvert, Wem, Salop; W. A. Taylor. *c*, J. Statter.

Hamburghs (Golden-spangled).—*Cock*.—1, D. Lord. 2, S. & R. Ashton, Mottram. 3, J. Buckley, Ashton-under-Lyne. *hc*, J. Rollinson, Lindley, Yorkshire; J. Buckley (2); J. Ogden, Hollinwood. *Hens or Pullets*.—1, W. A. Hyde, Ashton-under-Lyne. 2 and 3, N. Marlor, Manchester. *hc*, J. Rollinson; J. Buckley; J. Ogden (2).

Hamburghs (Silver-spangled).—*Cock*.—1, J. Fielding. 2 and 3, Ashton and Booth. *hc*, N. Marlor; Ashton & Booth (3). *Hens or Pullets*.—1 and 3, J. Fielding. 2, Ashton & Booth. *hc*, W. H. Robinson, Keighley, Yorkshire; Rev. N. J. Ridley; Rev. W. Serjeantson; J. Lancashire, Manchester; W. McMellon, West Glossop.

Hamburghs (Golden-pencilled).—*Cock*.—1, W. M. Mann, Kendal. 2, J. Walker, Ripley. 3, T. Wrigley, jun., Middleton. *hc*, W. H. Robinson; W. M. Mann; T. Wrigley, jun.; H. Beldon. *Hens or Pullets*.—1, J. Walker. 2, T. Wrigley. *hc*, J. Walker; J. Rollinson.

Hamburghs (Silver-pencilled).—*Cock*.—1, W. M. Mann. 2, J. Walker. *hc*, J. Robinson. *Hens or Pullets*.—1 and 2, W. M. Mann. *hc*, J. Robinson; J. Walker.

Game Bantams (Black-breasted Reds).—*Cock*.—1, J. W. Morris, Rochdale. 2, W. Adams, Ipswich. 3, J. R. Robinson, Sunderland. *vhc*, E. & J. T. Hudson, Ulverstone. *hc*, J. Blamires, Bradford, Yorkshire; Morris & Wood; H. J. Nicholson, Holborne Hill, Cumberland; J. Oldfield, Bradford, Yorkshire; T. Sharples, Rawtenstall; W. Hodgson; J. Ewing, Tupton Moor, near Chesterfield; E. Fearon; J. Mashiter. *c*, W. Hodgson. *Hens or Pullets*.—1 and 2, T. Sharples. 3, J. W. Morris. *vhc*, G. Smith, Staveley, Derbyshire. *hc*, J. R. Robinson; H. Hollis, Bulwell, Notts; W. Hodgson; J. Mashiter.

Game Bantams (Brown-breasted Reds).—*Cock*.—1, W. Adams. 2, J. Blamires. *hc*, H. P. Leech; J. Frith. *Hens or Pullets*.—1, T. Barker, Burnley. 2, W. Adams. *hc*, H. P. Leech; J. R. Yates, Manchester; J. Ewing.

Game Bantams (Any other variety).—*Cock*.—1, H. J. Nicholson. 2, J. Frith. *vhc*, J. Ewing. *hc*, J. Douglas; Rev. C. J. P. Keene, Ormskirk; G. Smith; Bellingham and Gill, Burnley; J. Ewing. *c*, G. Smith; J. Mashiter, J. Frith. *Hens or Pullets*.—1, J. Frith. 2, G. Smith. *hc*, Rev. C. J. P. Keene; Bellingham & Gill; Mason & Ashmore, Chesterfield; G. Smith.

Bantams (White).—1, S. & R. Ashton. 2, W. Arkwright. *hc*, H. Beldon.

Bantams (Any other variety).—1, J. Sichel (Pekin Bantams). 2, W. H. Robinson (Black Bantams). 3, M. Leno (Laced Bantams). Extra 3, F. H. Paget, Leicester (Cuckoo Bantams). *hc*, Ladies E. & C. Moreton, Falfield, Gloucester (Black Bantams). M. Leno (Laced Bantams); W. A. Taylor (Black Bantams); H. Draycott, Humberstone, Leicester (Black Bantams); S. & R. Ashton (Black Bantams); H. Beldon; E. Walton, Rawtenstall (Sebright Bantams.)

PIGEONS.

Pouters (Blue or Red).—*Cock*.—1, W. Harvey, Sheffield. 2, J. Hawley, Bradford, Yorkshire. *Hen*.—1, R. Fulton, Deptford. 2, W. Harvey. *hc*, E. Horner, Leeds. *c*, J. Hawley.

Pouters (Any colour).—*Cock*.—1 and *c*, Mrs. Ladd, Calne, Wilts. 2, F. W. Zurhorst, Dublin. *hc*, J. Hawley. *Hen*.—1, J. Hawley. 2, Mrs. Ladd. *hc*, R. Fulton.

Carriers (Black).—*Cock*.—1, J. Chadwick, Bolton. 2, E. Horner. *c*, R. Fulton. *Hen*.—1 and *c*, R. Fulton. 2, E. Horner.

Carriers (Dun).—*Cock*.—1, R. Fulton. 2, E. Horner. *c*, F. J. MacLaren, Pendlebury. *Hen*.—1, R. Fulton. 2, J. B. Buckley, Southport.

Carriers (Any colour except Black or Dun).—*Cock*.—1 and 2, R. Fulton. *Hen*.—1, R. Fulton. 2, J. Watts, Birmingham.

Dragoons (Yellow).—1, F. Graham, Birkenhead. 2, J. Ashworth, Blackburn. *hc*, J. Holland, Manchester. *c*, G. South, Bond Street, London.

Dragoons (Any other colour).—1 and 2, J. Holland. Extra 2, G. South. *hc*, F. Graham; C. E. Duckworth, Liverpool; W. Hill. *c*, E. Horner.

Antwerps.—1, W. Arkwright. 2, C. F. Copeman, Birmingham. *hc*, R. Keyzey, Stockport; W. Bourne. *c*, W. Harvey; L. Byrom, Blackburn.

Jacobins.—1 and 2, J. Thompson, Bingley, Yorks. *hc*, J. Taylor, Rochdale. *c*, G. South.

Barbs.—1, J. Dowling, Cork. 2, R. Fulton. *hc*, S. Holroyd, Oldham; R. Fulton.

Fantails (White).—1, H. Yardley. 2 and *c*, J. F. Loversidge, Newark, Notts. *hc*, Rev. W. Serjeantson.

Fantails (Any colour except White).—1 and 2, H. Yardley. *hc*, F. H. Paget.

Tumblers (Almond).—1, J. Ford, Monkwell Street, London. 2, J. Fielding, jun., Rochdale. *hc*, R. Fulton. *c*, J. Peace, Burton-on-Trent; R. Fulton.

Beards or Balds.—1, J. Fielding, jun. 2, G. South. *hc*, G. South; J. Fielding, jun. *c*, W. J. Woodhouse, Lynn, Norfolk.

Tumblers (Any other variety).—1, J. Fielding, jun. 2, F. Moore, Burnley.

Nuns.—1 and *c*, J. Dowling. 2, E. Horner.

Magpies.—1 and *hc*, E. Horner. 2, J. Baily, jun., Mount Street, Grosvenor Square, London.

Turbits.—1, J. Dowling. 2, W. Croft, Ripley, Yorks. *vhc*, G. South. *c*, R. Fulton.

Swallows.—1 and 2, E. Horner. *hc*, H. Draycott, Leicester. *c*, F. H. Paget.

Archangels.—1 and *c*, H. Yardley. 2, R. Kitchin, Whitehaven. *hc*, J. Thompson.

Owls (Blue and Silver English).—1, J. Chadwick. 2, A. Mangnall, Manchester. *hc*, A. Magnall; Master C. Gamon, Chester. *c*, Master C. Gamon.

Owls (Foreign).—1, J. Fielding, jun. 2, E. Horner. *hc*, R. Fulton; J. Fielding, jun. *c*, A. Magnall.

Runts.—1 and 2, D. T. Green, Saffron Walden, Essex. *hc*, W. Taylor.

Trumpeters.—1, E. Horner. 2, R. Fulton.

Any other Variety.—1, F. H. Paget. 2, J. Thompson. 3, S. A. Wyllie (Ice Pigeons). *hc*, W. C. Dawson, Otley, Yorkshire (Ice Pigeons); S. A. Wyllie, East Moulsey; W. Harvey. *c*, W. Lumb, Rochdale (Black Priests); J. Baily, jun.; W. B. Tegetmeier, Finchley, London (Florentines.)

Judges.—*Poultry:* Dorkings, Spanish, Cochins, French Breeds, and Ornamental Waterfowl, Mr. Edward Hewitt, Sparkbrook, Birmingham; Game Fowls and Brahmas, Mr. Richard Teebay, Fulwood, Preston; Game Bantams, Ducks, &c., Mr. John Douglas, The Aviaries, Clumber Park, Worksop; Hamburghs, Polands, Extra Stock, and Bantams, except Game, Mr. J. Dixon, North Park, Bradford, Yorkshire. *Pigeons:* Dr. Cottle, Cheltenham; Mr. Peter Eden, Cross Lane, Salford.

SCOTTISH COLUMBARIAN ASSOCIATION'S EXHIBITION.

This was held on December 28th and 29th in the Music Hall, George Street, Edinburgh. The classes from 1 to 18 inclusive were for birds bred in 1871. A gold medal, value £2 2*s*., was given by William Volckman, Esq., as a special prize for excellence of form and carriage, open to all the cock Pouters in the standard Pied classes, irrespective of age, of not less measurement than 19 inches of feather, and $6\frac{7}{8}$ of limb, fair colour and marking indispensable; and a gold medal, value £2 2*s*., by George Ure, Esq., as a special prize for excellence of form and carriage, open to all hen Pouters of the standard Pied classes, irrespective of age, of not less measurement than $17\frac{3}{4}$ inches of feather, and $6\frac{5}{8}$ of limb. Pen 518 held a Pigeon engaged carrying despatches during the late Franco-Prussian war, and which flew on board Capt. Wilson's ship, two days' sail from land, with a message attached, and was brought to one of the members.

YOUNG BIRDS.

Pouters (Black).—*Cocks*.—1, G. Ure, Dundee. 2, J. Wallace, Glasgow. 3, J. Millar, Glasgow. *hc*, W. Rutherford, Edinburgh. *Hens*.—1 and 2, J. Millar. 3, G. Ure. *hc*, E. Horner. *c*, R. Fulton.

Pouters (White).—*Cocks*.—1, J. White, Aberdeen. 2, J. Macaulay, Edinburgh. 3, R. Fulton, New Cross, London. *hc*, J. Wallace; R. Inch, Liberton. *c*, J. M'Gill, Elie, Fife. *Hens*.—1, W. Duncan. 2, J. Grant, Edinburgh. 3, D. Stewart. *c*, R. Inch.

POUTERS (Blue).—*Cocks.*—1, G. Ure. 2, J. Wallace. 3, T. Duncan, Dalkeith. *he*, M. Stuart, Glasgow; W. Rutherford. *c*, D. Stewart, Perth; E. Horner, Leeds. *Hens.*—1, E. Horner. 2 and 3, J. Mitchell, Glasgow. *he*, G. Ure. *c*, G. Ure; J. Porteous, Edinburgh; M. Skinner.

POUTERS (Red).—*Cocks.*—1, J. Montgomery, Belfast. 2, R. Fulton. 3, E. Horner. *c*, J. Huie. *Hens.*—1, M. Stuart. 2, J. Wallace. 3, J. Grant. *he*, R. Fulton. *c*, G. Ure.

POUTERS (Yellow).—*Cocks.*—1, G. Ure. 2, E. Horner. 3, J. Huie. *c*, H. Mitchell, Edinburgh. *Hens.*—1, R. Fulton. 2 and *he*, J. Wallace. 3, Capt. C. Thomson, Broughty Ferry.

CARRIERS (Black).—*Cocks.*—1, E. Horner. 2 and *c*, H. Heritage, London. 3, G. C. Holt, Lawton. *Hens.*—1, T. Colley, Sheffield. 2, H. Heritage. 3, M. Stuart. *he*, H. Heritage; E. Horner.

CARRIERS (Dun).—*Cocks.*—1, G. C. Holt. 2, W. Massey, Spalding. 3, H. Heritage. *Hens.*—1, W. Massey. 2, G. C. Holt. 3, H. Heritage. *c*, G. C. Holt; E. Horner.

TUMBLERS (Almond Short-faced).—1, J. Ford, London. 2, W. R. & H. O. Blenkinsop, Newcastle-on-Tyne. 3, R. Fulton.

BARBS.—1, J. Wallace. 2, W. Massey. 3, W. R. & H. O. Blenkinsop.

FANTAILS.—1, J. Sharp, Johnstone. 2, G Ure. 3, J. Huie.

TRUMPETERS.—1 and 2, T. Rule, Gilesgate, Durham. 3, E. Horner. *he*, J. Wallace; J. Bruce, Dunfermline.

OLD BIRDS.

POUTERS (Black).—*Cocks.*—1 and Extra Gold Medal, J. Mitchell 2, 3, *whc*, and *hc*, G. Ure. *Hens.*—1, J. Montgomery. 2, J. Huie. 3, R. Fulton. *he*, E. Horner.

POUTERS (White).—*Cocks.*—1, J. Wallace. 2, M. Skinner. 3, J. Montgomery. *he*, J. Wallace: M. Sanderson, Edinburgh. *Hens.*—1, J. Montgomery. 2, E. Horner. 3, J. White. *he*, W. Moon, Edinburgh; J. Huie (2).

POUTERS (Blue).—*Cocks.*—1, J. Wallace. 2, M. Stuart. 3, J. Morrison, Edinburgh. *he*, J. White; G. Ure; W. Rutherford; J. Macaulay. *c*, D. Stewart. *Hens.*—1 and Extra Gold Medal, R. Fulton. 2, J. Montgomery. 3, G. Ure. *c*, M. Skinner; J. Huie.

POUTERS (Red).—*Cocks.*—1 and 2, R. Fulton. 3, J. Montgomery. *he*, A. Wright, Meathgaside. *Hens.*—1, J. Millar. 2, J. Montgomery. 3, M. Sanderson. *hc*, A. Wright.

POUTERS (Yellow).—*Cocks.*—1, R. Fulton. 2 and 3, G. Ure. *Hens.*—1, R. Fulton. 2, A. Wright. 3, G. Ure.

POUTERS (Any other colour).—*Cocks.*—1, J. Lohoar, Larkhall. 2, J. Morrison. 3, J. Sproull, Glasgow. *c*, J. Mitchell. *Hens.*—1, A. Wintour, Edinburgh. 2, J. Millar. 3, J. Huie. *hc*, J. Bruce.

CARRIERS (Black).—*Cocks.*—1 and Extra Gold Medal and 2, R. Fulton. 3, Miss A. Anderson, Trinity. *hc*, E. Horner (2). *Hens.*—1 and Extra Gold Medal, R. Fulton. 2, G. White, Paisley. 3, E. Horner.

CARRIERS (Dun).—*Cocks.*—1, W. Massey. 2 and 3, R. Fulton. *Hens.*—1, R. Fulton. 2, T. Colley. 3, J. R. Rennards, Helensburgh.

SHORT-FACED (Almonds).—1 and 3, J. Ford. 2 and *c*, R. Fulton. *hc*, J. Wallace.

SHORT-FACED (Any other colour).—1, J. Ford. 2, E. Horner. 3, W. Lumb.

BARBS (Black).—1 and 2, R. Fulton. 3, J. Wallace.

BARBS (Any other colour).—1 and 3, R. Fulton. 2, J. Montgomery.

FANTAILS.—1, J. Sharp. 2, G. Ure. 3, A. Lockhart, Kirkcaldy.

JACOBINS.—1, J. Lohoar. 2 and 3, R. Fulton. *hc*, T. Rule; R. Fulton. *c*, J. R. Rennards.

TRUMPETERS.—1 and 2, J. Montgomery. 3, E. Horner. *hc*, T. Rule; J. Wallace.

OWLS.—1 and 2, W. Goddard, Stanhope Street, London. 3, W. Lumb.

TURBITS.—1, G. Orr, Beith. 2, Miss M. Anderson. 3, E. Horner.

NUNS.—1, T. Imrie, Bontree Park, Ayr. 2, W. Croft, Ripley. 3, R. B. Heggie, Kirkcaldy.

MAGPIES.—1, W. Brydone, Dunse. 2 and 3, E. Horner.

TUMBLERS (Any variety not Short-faced).—1, J. Sharp. 2, D. M'Naught, Kilmaurs (Beards). 3, Capt. C. Thomson.

ANY OTHER VARIETY.—1, T. Imrie (Swiss). 2, W. Goddard (Ice). 3, E. Horner (Swallows).

JUDGES.—Mr. Joseph Frame, and Mr. E. L. Corker.

BIRMINGHAM COLUMBARIAN SOCIETY'S SHOW.

(From a Correspondent.)

THIS Society's seventh annual Exhibition was held on December 28th last at the Athenæum Rooms, Temple Street, and was a decided improvement on last year's Show, there being 332 pens, as compared with 217. The quality of the birds was good, for not more than one or two pens could be pointed out as inferior; the condition in which the owners sent their specimens was also good, every bird being in perfect feather. The Show was divided into two sections—birds bred in 1871, and old birds.

BIRDS OF 1871.

Carriers (Black) were a good and strong class. First came a very good bird, so forward that many breeders declared he was an adult: such was not the case. This bird obtained the third prize at the late Palace Show. The second prizes went to good specimens that promise well for the future. This class numbered nineteen entries. We may also add that the Birmingham cup bird only received a high commendation.

Carriers (Dun).—First was a grand bird, good in every point, and promising well. This bird will most probably always stand in the front rank; the pride of place in all the young Carriers must be accorded to this bird. Second came a very good hen; third a nice stylish bird, strong in bill, good in eye, rather down in face.

Carriers (Any other colour).—First a good Blue; the second and third Blues promise well.

Pouters.—First and second came very stylish Whites, of good length of feather and leg, narrow in girth, and shown in splendid condition.

Almonds.—Fine birds, possessing every essential property for an Almond, were first and second.

Any other Short-faced.—First came a Red Whole-feather hen, perfect in head, eye, and bill, of grand carriage, and of a deep sound colour. This bird also obtained the cup for the best bird in this and the foregoing classes; she well deserved her reward. Second came a fine Yellow, and the same exhibitor was also highly commended for a Red Mottle cock, sound in colour and feather, and with only half a dozen white feathers on his butts. The third prize went to a good Kite, which looked as though he had come from the same loft as the other winners in this class.

Jacobins.—In this class the first and second prizes went to Red, and the third and a high commendation to Yellow, all of which were good birds in every point. Mr. Waitt likewise obtained the silver cup for the best bird in the young classes of Jacobins, Turbits, Barbs, Nuns, and Owls.

Turbits.—The first-prize bird was Silver, the second Blue; both were snake-headed and good; the third prize went to a deep-coloured Red, but shell-capped.

Nuns.—All the prize birds were Black. A very good class.

Owls.—All the prize birds were Blues. This was a good class, in fact the best young class we remember having seen for many years.

Dragoons (Blue).—We rather thought the third-prize bird should have been placed first, and the first-prize bird third. All were good, and of a deep sound colour.

Dragoons (Silver).—This was a good and strong class, numbering eleven pens.

Dragoons (Any other colour).—All three prize birds were Yellows, of a good sound colour. Several good Whites were also shown. These classes were judged by the Society's standard, which, by-the-by, is not "as thin as a bodkin."

Antwerps (Dun).—First was a good specimen, fine in head, bill, and style, though rather deficient in colour. The second and third-prize birds were promising, and good in colour. The first-prize bird also took the cup, as the best young bird in the Dragoon, Antwerp, and Any other variety classes.

Antwerps (Blue).—A good class.

Antwerps (Blue-chequer).—This was a strong class, all the specimens were good in head and beautifully marked.

Antwerps (Red-chequer).—The first-prize bird was very fine in eye, head, and colour—in fact perfection. This bird was in the cup pair at the last Bingley Hall Show.

Swallows.—The first and second prizes went to Blues.

BIRDS OF ANY AGE.

Carrier Cocks (Black).—First came a bird good in every point. It also obtained the cup as the best single old bird in the Show. Good specimens—in fact, birds that are fit to win at any show, were second and third.

Carrier Cocks (Dun).—The first and second prizes went to birds good in bill, eye, condition, and carriage.

Carrier Cocks (Any other colour).—First a good Blue, very stylish—in fact, the best Blue seen for some time. Second a very nice bird. A promising Silver was highly commended.

Carrier Hens (Black).—First a hen in good condition. The second-prize bird in this class was by far the best hen, and should have obtained the first place. A good hen, rather red in the lash, was highly commended. This was a good class.

Carrier Hens (Dun).—First a grand hen, good in all points, hough in bad condition. Second a good hen, of sound colour.

Carrier Hens (Any other colour).—This was not so good a class as we generally see at this Show.

Pouter Cocks.—The first prize went to a very showy White, good in length of feather and limb. Second came a good Red. Good Whites, very showy, and narrow in girth, were third and highly commended.

Pouter Hens.—The first and second-prize birds were in splendid condition, showy, of great length, and narrow in girth. All the three winners were Whites. These classes exhibited a great improvement on the previous year's Show.

Almond.—The cock bird in the first-prize pair had a perfect head and bill, good eye, colour, and carriage, and well broken; in fact, he may be considered perfection. The hen was also very fine, possessing a real Almond ground and well broken, a good head and carriage. This pair obtained for their owner the cup for the best pair of old birds in the Show.

Any Variety Short-faced.—Red and Yellow Whole-feathers, Red and Yellow Agates, and Kites carried off the honours. This we think was the best class in the Show. Every bird was perfection, in splendid condition, not a feather soiled. It is doubtful if any other fancier could produce such a lot of birds as the exhibitor of these.

Barbs.—The first prize went to a pair of Blacks that will hold their own at any show; the second also to a pair of Blacks.

Owls.—A very good pair of Silvers possessing good heads and well throated were first, Blues second, good Blacks third. This was a very good class.

Jacobins.—Blacks, Reds, and Yellows stood in the prize list in the order named. They were all good. The Blacks well deserved their place; they were a perfect pair, well matched, good in hood, frill, and mane, not a white feather to be seen below the mandible, and perfectly black to the thighs and vent.

Nuns.—This was a good class, all Blacks. The scissors had not been so freely used as is generally the case with this variety.

Trumpeters.—A good pair of Black Mottles were first. Second came a pair far too gay to be called Mottles. Both these pens of birds are good in hood, rose, and muff.

Tumblers (Long-muffed).—A good pair of Red Rosewings were

first. Three pairs of good clear Blues were respectively second, third, and highly commended. This is a colour seldom seen. Blues are very pretty when they are as good as these.

Tumblers (Clean-legged).—The first prize went to a pair of Red Mottles. Pleasant-faced Yellow and Black Baldheads were second and third. A pair of Self-coloured Yellows were highly commended.

Dragoons (Blue).—A good and sound-coloured pair of well-matched perfect birds were first. Both second and third-prize pens consisted of good birds. In a highly-commended pair the hen was good, but the cock was far too coarse for its mate.

Dragoons (Silver).—This was a good class, and numbered six pens.

Dragoons (Yellow or Red).—Yellows first; good for head and bill, though bad in colour, being slaty in back, tail, and thighs. Good Reds were second; Yellows third and highly commended. We preferred the third to the first and second-prize pairs.

Dragoons (Any other colour).—The first prize went to a good pair, the hen perfection. Most of the other pairs in this class were not up to the mark.

Antwerps (Dun).—This was a good class. Good birds fully up to the standard were first, second, and highly commended. A very good pair came third.

Antwerps (Blue).—First, the Blues that were first at the late Bingley Hall Show. This was a good class.

Antwerps (Blue-chequered). — The prizes went to good birds splendidly marked. A highly commended pair were very little inferior to it.

Antwerps (Red-chequered).—This was a good and strong class. The Antwerps as a whole were good, and such as only can be seen at Birmingham.

Any other Variety (Pairs).—Brunettes, Turbiteens, and Black Swallows were respectively first, second, and highly commended. Ice were third. Several good pairs of Satinettes, Turkish Rollers, and other new varieties were shown, and included many varieties that have been imported from the East.

Any other Variety (Single bird).—Blondinettes, Satinettes, and Brunettes took the prizes. This was a very strong and pretty class.

Antwerps (Cocks).—First was the standard cock, which well deserved his position; the second was a Dun cock very little inferior; third a good Blue-chequer. A good Dun was highly commended. This was a good and strong class of fifteen pens. The Judges remarked that twice the number of prizes could easily have been awarded.

The attendance was not up to the average. This was to be accounted for by the weather, as it rained hard all day. Through illness in his family Mr. Easten, of Hull, was not able to send any birds, although he had entered twenty pens. We never saw any show better carried out, and are pleased to find that the Society is gaining ground, having now upwards of sixty members. The whole of the 323 entries were contributed by twenty-six exhibitors. Too much praise cannot be acceded to the President, Mr. Allsop, to the Hon. Sec., Mr. Ludlow, and to the Committee for the assiduous and courteous manner in which they worked.

Mr. Allsop, Mr. Child, and Mr. Careless were the Judges. The former gentleman refrained from judging in the Dragoon classes, as he was an exhibitor, and entirely withdrew his birds from competition for the cup in the young Dragoon, Antwerp, and Variety classes.

YOUNG BIRDS.

CARRIERS.—*Black.*—1, H. Hallam, Lozells, Birmingham. 2, Equal 2, and *hc*, G. Gordin, Birmingham. 3, J. A. Cooper, Walsall. Equal 3, G. Hodgkinson, Erdington. *Dun.*—1, G. Gordin. 2, H. Hallam. 3 and *hc*, J. Isaac, Kenilworth. *Any other Colour.*—1, G. Hodgkinson. 2 and 3, J. Watts, King's Heath, Birmingham.

POUTERS.—1 and 2, — Pratt, Lozells, Birmingham.

ALMONDS.—1 and 2, T. Hallam, Lozells, Birmingham. 3, J. Watts. *Any other Short-faced.*—Cpp 1, 2, and *hc*, — Hallam. 3, J. Watts.

TUMBLERS.—*Muffed.*—1, J. W. Ludlow, Birmingham. *Clean-legged.*—1, J. Watts.

JACOBINS.—Cup, 1, 2, 3, and *hc*, F. Waitt, King's Heath, Birmingham.

TURBITS.—1, 2, and 3, F. Waitt.

BARBS.—1 and 2, F. Smith, Selly Oak, Birmingham.

NUNS.—1 and 2, J. Watts. 3, F. Waitt.

OWLS.—1 and 2, J. Watts. 3 and *hc*, T. Mills, Wa'sall.

DRAGOONS.—*Blue.*—1, 2, and 3, G. Green, Birmingham. *hc*, G. Green; C. Gamon. *Silver.*—1, 2, and 3, H. Allsop, Birmingham. *hc*, G. Green. *Any other Colour.*—1, — Thompson, Selly Oak, Birmingham (Yellow). 2, H. Allsop (Yellow). 3 and *hc*, F. Graham (Yellow and Dun).

ANTWERPS.—*Dun.*—Cup, 1, and *hc*, C. Copeman, Birmingham. 2, J. Massey, Birmingham. 3, H. R. Wright, Birmingham. *Blue.*—1, 2, and 3, J. W. Ludlow. *hc*, H. R. Wright.

ANTWERPS.—*Blue-chequered.*—1 and *hc*, J. W. Ludlow. 2, J. Massey. 3, H. R. Wright. *Red-chequered.*—1, 2, and *hc*, H. R. Wright. 3, C. Gamon, Chester.

SWALLOWS.—1 and 2, J. Watts.

ANY OTHER VARIETY.—1, 3, and *hc*, J. Watts. 2, J. W. Ludlow.

BIRDS OF ANY AGE.

CARRIERS.—*Black.*—*Cocks.*—Cup and 1, F. Smith. 2 and 3, H. Hallam. *hc*, J. Isaac. *Hens.*—1, G. Gordin. 2 and 3, F. Smith. *hc*, S. A. Cooper.

CARRIERS.—*Dun.*—*Cocks.*—1 and 2, H. Hallam. 3, J. Watts. *Hens.*—1, G. Gordin. 2, J. Isaac. 3, H. Nightingale. *hc*, S. A. Cooper.

CARRIERS.—*Any other Colour.*—*Cocks.*—1, H. Nightingale, Birmingham. 2 and *hc*, J. Watts. 3, F. Mills. *Hens.*—1, H. Nightingale. 2 and 3, J. Watts.

POUTERS.—*Cocks.*—1 and 2, W. Crook, Swansea. 3 and *hc*, — Pratt. *Hens.*—1 and 2, — Pratt. 3, W. Crook. *hc*, J. Watts.

ALMONDS.—Cup, 1, and 2, T. Hallam.

SHORT-FACED.—*Any variety.*—1, 2, 3, and *hc*, T. Hallam.

BARBS.—1, F. Smith. 2, J. Watts.

OWLS.—1, S. A. Cooper. 2, T. Mills. 3, F. Waitt.

JACOBINS.—1, 2, 3, and *hc*, F. Waitt.

TURBITS.—1, F. Waitt.

NUNS.—1, S. A. Cooper. 2, J. Watts. 3, F. Waitt.

TRUMPETERS.—1, W. Crook. 2, J. Watts.

TUMBLERS.—*Long-muffed.*—1, J. Watts. 2 and 3, J. Massey. *Clean-legged.*—1, J. Watts. 2 and 3, T. Hallam. *hc*, J. Massey.

DRAGOONS.—*Blue.*—1, H. Allsop. 2, G. Green. 3, J. Watts. *hc*, C. Gamon. *Silver.*—1, 2, and 3, H. Allsop. *hc*, F. Graham. *Yellow and Red.*—1, J. Watts. 2, — Thompson. 3 and *hc*, F. Graham. *White.*—1, H. R. Wright. 2, F. Graham.

ANTWERPS.—*Dun.*—1, 2, and *hc*, H. R. Wright. 3, J. W. Ludlow *Blue.*—1, C. Gamon. 2, J. W. Ludlow. 3, J. Watts. *hc*, J. Massey. *Blue-chequered.*—1, 2, and 3, J. W. Ludlow. *hc*, H. R. Wright. *Red-chequered.*—1, H. R. Wright. 2, 3, and *hc*, J. W. Ludlow. *Cocks.*—1, C. Gamon. 2 and *hc*, H. R. Wright. 3, J. W. Ludlow.

ANY OTHER VARIETY.—*Pairs.*—1, 2, and *hc*, J. W. Ludlow (Brunettes, Swallows, and Blondinettes). 3, W. Crook. *Single.*—1, 2, 3, and *hc*, J. W. Ludlow (Brunette, Booted Owl, Hyacinth, and Blondinette).

FIVE Silver Cups, as Special Prizes, were given by this Society.

DRAGOON PIGEONS.

I AM glad to see Mr. Frank Graham's remarks respecting this breed, as there seems to be a great difference of opinion as to the proper standard of a Dragoon. In my experience of fifteen years as a breeder of this class of Pigeon, I have found some difficulty in producing the birds stout in the bill, a property which represents the only true-bred Dragoon, provided always the bird is perfect in head, carriage, and markings. I have bred Dragoons of almost every colour except Black, which I maintain does not exist in this breed. The bars of a Silver Dun Dragoon cannot be too narrow, and must be raven-black. These markings are a very great point of excellence. Blues also require narrow jet-black bars. I have for years bred spindle-beaked birds which never obtained me a prize in a show pen except once, and had I been Judge they would not have been placed. Fanciers of the spindle-beaked Dragoon are fast dying out, and many Judges are changing in favour of stout-beaked birds. Dragoons should be almost free from wattle, and in size nearly as large as a Carrier.—JOHN G. DUNN, *Newcastle-upon-Tyne.*

WINTERING BEES.

I NOW resume my remarks on the wintering of bees, referred to in last number. This, as I have already said, has always been a fertile theme of discussion among apiarians, and various have been the modes suggested as the best.

Some, like old Bonner, the celebrated Scottish apiarian, plastered the skirts of the hive all round the board with lime, covered it over with a large quantity of pob-tow or straw, and placed a *divot*, or turf, upon the top, to hold it close down and keep the bees dry and warm. The only apertures for air were two small holes cut in a piece of wood which formed the entrance, and these were so small in size as scarcely to exceed a quarter of an inch each. During snowstorms even these small apertures were loosely stuffed with tow also to keep the bees prisoners. Some, again, like the Swiss apiarian, Jonas de Gelieu, who also wintered out of doors, having been equally careful, with Bonner, that the hives had ample provisions, covered them with matting, an old blanket, fern, or other similar substance, in order to preserve the bees from rain, frost, or cold; the entrances also being contracted, so as only to admit the passage of a single bee at a time, and closed up every crevice by which the external air could penetrate. To prevent internal moisture, however, Gelieu placed small caps on the top cemented all round with mortar, by means of which "the moisture ascending evaporates through the opening as by a chimney." To attain the same end, Taylor, Richardson, and others, place bell-glasses, "well covered with flannel, over the aperture on the top of the box or hive, removing it from time to time, and carefully wiping away from its interior the damp formed by condensed vapour."

Again, some apiarians, to prevent internal dampness, like Miner, the American apiarian, do not resort to top ventilation at all, but allow a free current of air to pass underneath the hive, by openings at front and rear during all the winter, and only shut these when breeding commences in spring, or when snow is on the ground, by using perforated zinc slides.

According to Mr. Langstroth, Mr. Quinby, who is said to have probably the largest apiary in the United States, winters his bees with great success within-doors, in a special repository fitted up for the occasion; and to get rid of the damp "he inverts the common hives and removes the board that covers the frame."

The Rev. Mr. Scholtz, of Lower Silesia, a German apiarian of considerable celebrity, is said to winter his bees in what are called *clamps*. The hives are piled in a pyramidal form, and

arranged in tiers in a circular pit bedded with straw. All is covered over with the same material, and completely boarded and protected from the influences of the weather by layers of earth surrounding all. Ample provision is made by flannels and other means for the circulation of air, and prevention of damp, by upward ventilation through the apex of the pyramid, &c. In this clamp they are shut up from November to April, and "pass the winter (says Mr. Scholtz) uninjured from damp and moisture, and with less consumption of stores."

The celebrated Dzierzon usually winters some of his weaker colonies in a dry cellar, and "they always do well." "Universal experience (writes Dzierzon) teaches that the more effectually bees are protected from disturbance, and from the variations of temperature, the better will they pass the winter, the less will they consume of their stores, and the more vigorous and nnmerous will they be in the spring."

Notwithstanding such testimonies, however, to "in-door wintering" and to burying in clamps, I am not inclined to think that there is any necessity for apiarians in this country having recourse to either of these practices. They are attended with an amount of trouble and constant supervision which contrast unfavourably with the simpler methods adopted in our own land; and De Gelieu, who has tested the different modes of "out-door and in-door wintering" in his country, most decidedly prefers the former. "The following winter (he writes), I left out the one half of my hives, and moved the other half into a cold room, according to my usual custom, when all the pains I bestowed upon them did not altogether keep them alive, nor preserve them from damp and infection. In vain I swept and cleaned the boards, or placed them on dry hay to absorb the moisture; in vain I gave them capes or joinings. With all my care there was not one of them free of diseases and infection. The winter was long and severe; and they could not be returned to the air before the last week in March, by which time they were feeble and languid, and far less prosperous than those that had passed the winter out of doors. From that time I have never taken one into the house."

I am not inclined, therefore, to recommend either of the methods adopted by American or German apiarians of wintering our bees, either in cold, dry, dark cellars, or in clamps, *alias* burying pits. Far less should I be disposed to approve of the new mode of wintering bees by the American apiarian Mr. Hosmer, brought before our notice in the Journal of 14th December, by your esteemed correspondent, "B. & W." In cases of necessity we might, with Dzierzon, try some of our weaker colonies within-doors, or such as are domiciled in unicombs, adopting a constant supervision over them, but to purposely divide our strong hives in autumn for the sake of a questionable economy in the mere consumption of a few pounds of honey, is, in my opinion, the very reverse of good management. "Experience, in this matter, is the best schoolmaster," for we all know that a weak hive in autumn is, as a rule, a weak hive in spring. On the principle, therefore, that "union is strength," in the case of the bee as of man, and believing, with Bonner, that "one (really) good hive is worth four bad ones," I cannot approve of the breaking-up or division of strong families in autumn.

Although I perfectly agree with Mr. Hosmer in the desirability of encouraging late breeding in autumn, with the view of securing a preponderance of the youthful element in every stock hive, having directed the attention of apiarians to this subject some years ago in the Journal, yet I should not, like "B. & W.," desire to get rid of their elder associates. Even upon the assumed hypothesis that the old bees, "which have consumed honey all the winter, die after their first flight in spring," I would not wish to discard them if I could, for I reckon their presence of the utmost value to the colony during the rigour of winter, as well as the commencement of breeding in spring. But is it a fact that all the old bees die during the first flight in spring, as Hosmer supposes? Certainly not. Pray what bees are these that are called "old bees?" Are they what your experienced correspondent "B. & W.," inadvertently perhaps, terms "summer-bred bees," and which he, too, I am sorry to see, thinks it desirable to get rid of before wintering? I venture to say there are, as a rule, few or no "summer-bred" bees in any of our hives in winter. All have perished, and our stocks are almost, if not entirely, peopled by autumn-reared bees. Such being the case, I think that Hosmer's theory is erroneous in principle and entirely delusive —independently, too, of the error of holding the older bees in a hive as worthless, the practice of weakening his strong stocks in autumn by division, for the assumed advantage of a few pounds saved in stores, is one which will never be followed by experienced apiarians, as it is alike irreconcileable with the known winter habits of the bee, as it is opposed to all sound and enlightened management.—J. Lowe.

ARE ARTIFICIAL QUEENS INFERIOR TO NATURAL QUEENS?

Mr. J. M. Price, writing in the American "Bee Journal," asserts that he has proved, beyond doubt, that queens raised artificially are worthless in comparison with those raised naturally. From my own experience I am led to differ from him most decidedly. Out of twenty-five stocks, the largest number of colonies I ever possessed at one time, I had not a single queen that was not either artificially raised in a small nucleus box, or was not the descendant of one who was so raised, but I could never discover that my queens were deficient in breeding powers, or, barring accidents, in longevity. In fact, the fecundity of some of these was frequently a subject of surprise and remark. One queen, in particular, seems to stand pre-eminent in these respects.

Soon after the first introduction of Ligurian queens into this country, my own double venture having proved unpropitious, my friend, the late Mr. Woodbury, gave me a royal cell, which he cut out of a small nucleus box, from brood of his best yellow queen. This cell I inserted in a brood-comb in a nucleus box with a few adult bees. In a few days she was hatched out, and I was struck with her size and beautiful colour. Soon after she had commenced breeding I transferred them into an eight-frame Langstroth box, and gave the bees another sealed brood-comb. The stock was not particularly strong at the close of the autumn, and barely managed to hold its own through the winter; but by the end of April it had become so populous as to present the appearance of being ready even then to send off a swarm. A large super was given to the bees, into which they at once ascended, and were so crowded as to make it seem almost impossible for them to work at comb-building. In about three weeks from that time, considerable progress having been made in that respect, and the bees again crowding outside the entrance, a second super was slipped in between the first and the honey-board of the stock box, which also became at once crammed with bees. Early in July I removed the doubled super, containing 54 lbs. of honeycomb.

The following year this stock also distinguished itself in spring and early summer by the possession of a teeming population, and gave a splendid glass box super of 75 lbs. weight. The next season seemed equally propitious; a super of 50 lbs. was taken, and an immense swarm thrown off, which also the same summer gave me a super of 26 lbs. weight. The following spring I examined the queen which had come off with this swarm, and was convinced in my own mind, from her peculiar markings and appearance, that she was the same queen which had been raised in the nucleus box. That season this swarm became excessively crowded, and I put on a larger super than I had ever before used, and it contained when full the large quantity of 86 lbs. of the finest possible honeycomb.

The following spring the old queen showed symptoms of having become almost worn-out, and was, I believe, soon afterwards superseded by the bees, as I discovered a queen of a very different character at my next inspection of the interior. At the time of the old queen's death she must have been at least four years and a half of age.

I mention but this one instance out of many which have come before my notice, but it is quite sufficient, in my mind, to establish the truth of the assertion, that artificial queens may and do prove equal in every respect to the best of those raised by the bees for the purposes of natural swarming.—S. Bevan Fox.

Shading in Winter.—Mr. Taylor says:—"Where the hives stand singly, I have always seen the advantages of fixing before each a wooden screen, nailed to a post sunk in the ground, and large enough to throw the whole front into shade. This does not interfere with the coming-forth of the bees at a proper temperature, and it supersedes the necessity of shutting them up when snow is on the ground. The screen should be fixed a foot or two in advance, and so as to intercept the sun's rays, which will be chiefly in winter towards the west side."

OUR LETTER BOX.

Golden-pencilled Hamburgh Hen (*P. C.*).—We do not say we have never seen one with a clear hackle and pencilled tail, but it is a very rare occurrence, and we should not know where to find one at any price.

Top-knot Plucked Off (*H. K.*).—It is more than likely the ointment you require would be injurious to the feathers growing in the top-knot. The best ointment you can use will be strong sulphur. The hens only eat the feathers while they are growing; after they are formed they leave them alone. There can be no objection to separate them for a time, or, if necessary, to allow them occasional runs in company, being watched all the time that the luxury may not be indulged in. It is not for any purpose necessary they should always be together.

Various (*M. H.*).—La Flèche fowls are never strong, and we believe they lack constitution. They will bear rich food very well, but they are never well if supplied with water. We allow them to drink only morning and evening. The cock you speak of has either outgrown his strength, or was not sufficiently well fed when young. If he is not essential to your yard, do not attempt to save him. He is not worth it. He will never be fit for a stock bird.

Washing a Buff Cochin (*E. C. V.*).—Wash the plumage with soft soap and water, the former in small proportion. Use a sponge, and be content to wipe the feathers gently down without moistening the under plumage, which is always clean. Wipe them afterwards with flannel, and put them in an open basket with some soft straw before a fire. They will dry clean. Be sure you wash the fowl's legs as well as the feathers. Ground oats mixed with kitchen scraps will put on weight very fast.

Brittleness of Feathers (*H. B.*).—Your Hamburgh cock is changing his hackle, and the feathers only look as if they were broken. They will come right if they are let alone. Your feeding is very bad. Indian meal once per day is enough. You may give it in the morning; give good ground oats or oatmeal midday, and whole Indian corn in the evening. The tendency of Indian meal is to cause extreme fatness, and that is not favourable for health.

Breeding Pile Game Fowls (*H.*).—You can breed Piles either from the birds you name, or from a Black Red cock and White hen. You can breed Piles from a Brown Red cock and White hen, or between a White cock and a Ginger hen. They would not be faulty, but if you have any fixed ideas as to what you want, you must remedy the failings in the produce, by mating birds possessing the properties you require with those of the first cross that comes nearest to your standard.

Legs of Pile Game Fowls (*An Old Game Breeder, &c.*).—We cannot agree with you about the colour of the legs of Pile Game. Nearly fifty years ago we had much to do with Cheshire Piles, and there were Willows among them. Many years ago we shipped a main of Piles to the West Indies, and many of them had willow legs. We are heterodox enough to believe that the colour of the legs is immaterial; that whether it be a Derby Red with white legs, or an old Red with yellow, or a modern Red with willows, we should in the pit make choice of the bird without looking at the colour of his legs. If you can find as any county, or even large district, where Game fowls prevail, and where legs of only one colour are to be found, we shall ask ourselves a question, but at present we side with the judge or judges, and think "*in re* Game fowls," it is necessary all legs in a pen should be alike, but no colour in itself is a mark of greater or less purity or excellence.

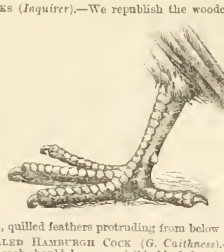
Price of Cochin Cockerel (*Devon Reefer*).—Such a bird as you describe, between gentleman and gentleman, should make £1.

Fowl's House (*G. A.*).—Your fowls have cold, stimulants such as strong ale are required. Hamburghs are more prone to roup than any others. Wash the swollen eyes with vinegar and cold water. Give Baily's pills. Get rid of the Hamburghs, they are "messing."

Pullets Picking a Cockerel's Flesh (*E. White*).—You must separate the cock from the hens till his top-knot is grown. It will then be safe from attack. In these matters cocks somewhat resemble gentlemen, they stand quiet while they are put to pain, looking for the "compensation balance" in the fact it gives the ladies pleasure. A cock or a cock Pheasant will stand still to be eaten alive by the hens. Bruce's tradition of the Abyssinians cutting a rump steak, day by day, out of the living ox, is nothing compared to a Spanish or Houdan cock standing still, the one while his head is eaten, and the other while his face is being pecked.

Selecting Stock Fowls (*Hants Housewife*).—No. 1 should have gone into the stock-pot last year. How is it you hatched no cockerel till August? Because No. 1 was too old. No. 2 is too young; 5, 6, 7, should go with an early bird of last year. Your failures of last year are your own seeking, and if you breed as you propose, you will hatch fewer eggs and have more faulty birds.

Vulture Hocks (*Inquirer*).—We republish the woodcut. Vulture hocks



are long, straight, quilled feathers protruding from below the knee.

Silver-pencilled Hamburgh Cock (*G. Caithness*).—A good Gold-pencilled Hamburgh cock should have no visible black but in the tail, and those feathers should be edged with bronze.

Plymouth Show (*J. Long*).—We hope you are correct in stating that it was "a success in every sense of the word." What you state about another party's misfortunes is not suitable for publication. (*N. Barter*).—There is no need to make further inquiries. Let us see what the present year will bring forth.

Edinburgh Poultry Show (*J. Rollinson*).—It was very careless of the Secretary not to send your prize Golden-spangled Hamburghs to Manchester as was undertaken by the Society. It was the more vexatious because you travelled to Manchester. "*An Exhibitor*," *Cambridge*, was similarly badly attended to, and at a cost of 25*s*.

Canaries (*H. G.*).—If your letter was received the query was answered; but we have too many questions daily to be able to remember each. Send your query again.

Spratt's Cat Biscuits (*Anthony*).—As you cannot obtain an answer from the factory we cannot advise you. Buy Meyrick's little book on dogs.

METEOROLOGICAL OBSERVATIONS,

Camden Square, London.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude 111 feet.

Date.	9 A.M.				In the Day.				Rain.
1871-2. Dec. and Jan.	Barometer reduced and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 ft.	Shade Temperature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass	
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 27	29.556	48.3	45.0	S.E.	42.3	48.4	44.8	69.1	42.3	0.020
Th. 28	29.483	47.2	45.2	S.	42.3	48.4	41.4	51.4	36.3	0.041
Fri. 29	29.649	43.4	42.4	W.	42.8	47.1	43.0	71.3	42.0	—
Sat. 30	29.874	44.6	42.6	S.S.W.	41.8	47.0	35.8	48.0	29.7	0.073
Sun. 31	30.074	45.7	34.2	W.	41.7	43.0	33.2	68.1	29.3	0.010
Mo. 1	30.070	38.8	36.4	S.E.	39.9	42.8	33.2	50.0	28.4	0.130
Tu. 2	29.830	43.9	43.0	S.	40.2	47.2	38.2	58.9	34.6	0.010
Means	29.791	42.8	41.3		41.6	46.3	38.5	59.4	34.7	0.284

REMARKS.

27th.—Bright sunshine with showers in the morning, fine in the evening.

28th.—Dull, overcast with slight showers, sunshine for a short time about noon, but dull day.

29th.—Rain in the night and till 9 A.M., then a fine day and beautiful moonlight night.

30th.—Beautiful moonlight in morning and splendid sunrise, wind rather high, clouded over soon after 8 A.M., and a damp uncomfortable day. White aurora between 8 and 9 P.M.

31st.—Slight white frost in morning, fine day, bright sun but rather cold wind.

1st.—Very fine all day, wind gradually rising after 6 P.M., rather high at night.

2nd.—Dark and wet in morning, slight showers during the day. Several meteors at night, mostly radiating from near Gamma Ursæ Minoris.

The temperature continues unseasonably high, with southerly winds and continued dampness.—G. J. Symons.

COVENT GARDEN MARKET.—January 3.

As usual at the close of the year, business transactions are limited to actual wants, and have no marked features in them. It has seldom been our lot to see a better or larger supply of roots and green vegetables than has been offered during and since the Christmas week; certainly the million have been amply supplied. Potato trade is heavy with large stocks; the Dunbars and East Lothians rule highest in the market.

FRUIT.

	s.	d.		a.	d.		s.	d.		a.	d.
Apples..... ½ sieve	2	0	to	4	0	Mulberries..... lb.	0	0	to	0	0
Apricots..... doz.	0	0		0	0	Nectarines..... doz.	0	0		0	0
Cherries..... lb.	0	0		0	0	Oranges..... ₱100	4	0		10	0
Chestnuts..... bushel	10	0		20	0	Peaches..... doz.	0	0		0	0
Currants..... ½ sieve	0	0		0	0	Pears, kitchen..... doz.	2	0		4	0
Black..... do.	0	0		0	0	dessert..... doz.	3	0		6	0
Figs..... doz.	0	0		0	0	Pine Apples..... lb.	4	0		7	0
Filberts..... lb.	0	6		1	0	Plums..... ½ sieve	0	0		0	0
Cobs..... lb.	0	6		1	0	Raspberries..... lb.	0	0		0	0
Grapes, Hothouse... lb.	3	0		6	0	Strawberries..... lb.	0	0		0	0
Gooseberries..... quart	0	0		0	0	Quinces..... doz.	0	0		0	0
Lemons..... ₱100	7	0		10	0	Walnuts..... bushel	10	0		25	0
Melons..... each	2	0		3	0	ditto..... ₱100	1	0		2	0

VEGETABLES.

	s.	d.		a.	d.		s.	d.		a.	d.
Artichokes..... doz.	0	0	to	0	0	Leeks..... bunch	0	2	to	0	6
Asparagus..... ₱100	6	0		10	0	Lettuce..... doz.	1	0		1	6
Beans, Kidney....per 100	3	0		4	0	Mushrooms..... pottle	1	6		2	6
Broad..... bushel	0	0		0	0	Mustard & Cress..punnet	0	2		0	3
Beet, Red..... doz.	1	0		3	0	Onions..... bushel	2	2		4	0
Broccoli..... bundle	0	9		1	6	pickling..... quart	0	6		0	8
Brussels Sprouts..½ sieve	2	0		3	0	Parsley per doz. bunches	3	0		4	0
Cabbage..... doz.	1	0		1	6	Parsnips..... doz.	0	9		1	0
Capsicums..... ₱100	1	0		3	0	Peas..... quart	0	0		0	0
Carrots..... bunch	0	6		0	0	Potatoes..... bushel	2	0		3	6
Cauliflower..... doz.	3	0		6	0	Kidney..... do.	3	0		5	0
Celery..... bundle	1	6		2	0	Radishes.. doz. bunches	0	6		1	0
Coleworts..doz. bunches	2	0		4	0	Rhubarb..... bundle	1	0		1	6
Cucumbers..... each	1	0		2	0	Savoys..... doz.	1	0		1	6
pickling..... doz.	0	0		0	0	Sea-kale..... basket	1	6		2	6
Endive..... doz.	2	0		0	0	Shallots ..... lb.	0	6		0	2
Fennel..... bunch	0	3		0	0	Spinach..... bushel	3	0		4	0
Garlic..... lb.	0	3		0	0	Tomatoes..... doz.	2	0		0	0
Herbs..... bunch	0	3		0	0	Turnips..... bunch	0	3		0	6
Horseradish..... bundle	3	0		4	0	Vegetable Marrows..doz.	0	0		0	9

POULTRY MARKET.—January 3.

It is impossible to give any account of the market for Christmas, or for some days afterwards, within the limits of a market notice. Should space permit we will give an article on the subject. Very choice poultry made good price throughout the Christmas week. That of inferior quality was unsaleable, and much of it remains unsold now.

WEEKLY CALENDAR.

Day of Month	Day of Week.	JANUARY 11—17, 1872.	Average Temperature near London. Day.	Night.	Mean.	Rain in 43 years. Days.	Sun Rises. m. h.	Sun Sets. m. h.	Moon Rises. m. h.	Moon Sets. m. h.	Moon's Age. Days.	Clock before Sun. m. s.	Day of Year.
11	Th	Hilary Law Term begins.	41.5	30.1	35.8	22	5 af 8	11 af 4	9 af 9	9 af 5	1	8 2	11
12	F		42.1	29.5	35.8	18	4 8	13 4	46 9	36 6	2	8 26	12
13	S	Cambridge Term begins.	43.0	29.3	36.2	19	3 8	14 4	18 10	2 8	3	8 49	13
14	Sun	2 Sunday after Epiphany.	42.1	29.9	36.0	19	2 8	16 4	39 10	24 9	4	9 11	14
15	M	Oxford Lent Term begins.	41.7	28.9	35.3	13	2 8	18 4	57 10	41 10	5	9 33	15
16	Tu		42.0	31.0	36.5	20	1 8	19 4	14 11	56 11	6	9 54	16
17	W	Royal Horticultural Society, Fruit, Floral, and General Meeting.	42.6	28.7	35.6	15	0 8	21 4	31 11	morn.	☽	10 15	17

From observations taken near London during forty-three years, the average day temperature of the week is 42.1°; and its night temperature 29.6°. The greatest heat was 54°, on the 12th, 1852; and the lowest cold 3°, on the 13th, 1867. The greatest fall of rain was 0.86 inch.

PEAT SOIL.

IT is a generally received opinion that Heaths, Azaleas, and other plants with delicate hair-like roots cannot be grown without peat soil. Such a conclusion, however, is often a mistaken one, and leads not unfrequently to failure; for, acting on the impression that peat soil is indispensable, soil bearing that name is procured, and proves wholly unsuitable for the plants for which it was intended. Some, too, knowing that peat is required for growing a certain class of plants, trust the selection of them to some as ignorant of the soil as they are of the plants themselves. There is a great difference in peats—some being of great importance to the gardener, others wholly unsuitable, and, indeed, hurtful for most of the purposes of floriculture.

Whilst admitting turfy peat soil to be the best for hard-wooded plants, such as Heaths, Azaleas, and others with very delicate roots, my experience nevertheless leads me to the conclusion that it is not, as is commonly supposed, indispensable. Peat is a deposit of vegetable fibre, the consequence of a long-continued growth on the same spot, and the dark colour of the soil we term peat is given by the plants. Proof of this may be found in the fact than an Azalea or Rhododendron, planted in a light-coloured sandy loam full of fibre, will within a quarter of a century change the soil to a dark brown peat, and the sand that was formerly the colour of the loam, is then as white as the finest silver sand. Heath on our moors forms the same deposit of dark-coloured soil, and if evidence were needed that the soil was not originally what we call peat, we could produce abundant proof of it. Here on the light-coloured loam springs up the Heath amongst the turf overlying sand or stone, and so close does its growth become that the grasses give way, and the Heath spreading out forms first a clump, and eventually a peat moor, which was once a light-coloured loam interwoven with a tough thick-growing turf. It is the property of plants to effect an alteration in the colour of soils, and even to enrich them with their own decayed parts, which enable the subject to exist on the same spot—for every plant in a state of nature supplies itself with the elements of existence—and fit the soil for a higher or grosser-feeding type of vegetation. The moss on the rock forms a rooting-ground for the Fern, just as the lichen on trees forms a lodgement for the epiphytes. So whilst cultivated plants take from the fertility of the soil, those in a wild state enrich it and add to its depth by their decaying parts, being generally succeeded, and often accompanied, by a higher and deeper-growing class of vegetation.

Peat, then, is a deposit of vegetable matter, consisting of a "sharp sandy soil mixed with the dead fibrous roots of Heath, and is usually of a dark grey colour." There are, however, brown and black peats, due, I consider, to the colour of the loam prior to the growth of the plants. I think the term peat is an inappropriate one for the soil of such value to the gardener, as we give the same name to every kind of dark spongy soil, whether it be that overlying rock or dry elevated ground in a thin strata; or that on a wet clayey subsoil of considerably less elevation, thinness, and lightness; or that from ground moderately dry, but moist enough to produce sphagnum—in which case the peat is brown in colour, very spongy, and not of more than a few inches thickness—or that from low ground, where, from the decay of sphagnum or plants allied to it, a deep layer, generally wet to the roots, is formed; all these, with many others that I could name, are included in the designation of peat. Heath mould would be a better name for the soil that is used for what I consider to be the finest plants of the garden.

The heath mould or peat, generally used for delicate hair-like rooted plants, is the soil which occurs in elevated well-drained moors, exposed to the withering blasts of winter and scorching heat of summer. The soil, usually less than a foot, and often only a few inches in thickness, lies on a layer of sandstone, limestone, freestone, or grit, being so thin, and the subsoil so sterile, as to forbid profitable tillage, but yielding a thickly-woven tough turf of very fine grass and good close-growing Heath. The top soil taken off 3 or 4 inches, or as far as the deposit of vegetable matter extends, is highly friable and dark-coloured, containing a considerable proportion of fine grains of white sand, and if laid up in a stack for a few months, it will ultimately form the peat so valuable for cultural purposes. It cannot be too fibrous, provided it be full of white sand, in fact the tougher the better. Never take it off so deeply as to bring away any that is close and devoid of fibre, and avoid that which is of a soft spongy texture. It may be black, brown, or dark grey, but the main consideration is texture, though colour shows the advanced state of the decay of the vegetable matter and the thickness of the deposit. The sooner a deposit is formed the less time is there for decay, and the lighter is its colour; whilst the slower the deposit the more complete is the decay, and the greater the blackness of the soil.

Now let us compare this heath mould with a light loamy soil covered with a thickly-woven turf, and what is the difference? Is it not in the decomposing vegetable matter and the smaller quantity of clay in the peat to what there is in the loam? Mr. Johnson, in the "Science and Practice of Gardening," page 96, tells us that "Peat of the best description is constituted in 400 parts."

PEAT.		LOAM.	
Fine siliceous sand	156	Fine sand	120
Unaltered vegetable fibre	2	Decomposing vegetable matter	100
Decomposing vegetable matter	110	Silica	130
Silica (flint)	102	Alumina	18
Alumina (clay)	16	Oxide of iron	10
Oxide of iron	4	Carbonate of lime	12
Soluble, vegetable, and saline matter	4	Sulphate of lime	1
Muriate of lime	4	Soluble, vegetable, and saline matter	5
Loss	2	Loss	4
	400		400

Now let us compare this with an analysis of loam of a

light sandy nature, in a close herbage that has accumulated so as to form a thickly-woven fibry surface of turf, taken off 1 to 1½ inch thick, and laid up for three months to decompose. The difference is not very great, and the only objection that can be urged against a soil of this description is the excess of lime and iron, in which there can really be no serious drawback, as the excess of iron is probably decomposed by the lime. There is also a slight excess of clay that may be overcome by the addition of sand, and the deficiency of vegetable matter may be compensated for by adding some old cow dung or leaf soil, with a large amount of sand. This soil should be laid up a few days or weeks, according to the period of the year, less time being needed in summer than winter, and finely chopped-up for small plants, and moderately so for large ones. If used rather rough, let there be a good proportion of finer particles, so as to fill up the interstices and allow of firm potting, adding to it one-sixth of silver sand, and a twelfth part each of charcoal in lumps from the size of a pea to that of a hazel nut, and broken pots that will pass a half-inch sieve; mix this thoroughly, and what is the plant that will not grow in it? I am not prepared to say that it will suit the most delicate of plants which require heath soil, but it will grow such subjects as Azaleas and Rhododendrons much better than any peat, and is especially suited to Camellias. So-called American plants require vegetable matter and plenty of sand; indeed, most, if not all, Cape, New Holland, and American plants need decomposing vegetable matter in the proportion of one to two of sand, a small proportion of clay, and very little lime or iron. In such a soil they will thrive, and by the decomposition of organic material and their own decaying parts, will give origin to the soil we term peat.

I have been so often disappointed by peat, that I have no hesitation in giving preference to the top inch of an old common, the soil of which is stony, rocky, or sandy underneath, and the old turf at the surface very tough, sandy, and partially decomposed. I use it for the purposes of peat in the culture of pot plants, but for American plants out of doors I do not consider peat needed. For plants in beds I prefer compost formed of the first 2 or 3 inches of an old pasture, chopped-up rather roughly and enriched with leaf soil from a wood, or from where Bracken and Foxglove grow, and the whole top-dressed with cow dung and plenty of sharp sand, to make the soil light and porous. This soil will grow Rhododendrons, Azaleas, Kalmias, Andromedas, and hardy Heaths much better than the majority of peats.

It should be stated that some peats are so ferruginous as to be wholly unsuitable, and some contain iron in such quantity as to be actually poisonous to plants, and yet the soil bears a very good growth of Heath. On examination, however, it will be found that the layer of peat is very thin, the ferruginous substance being immediately under it, but none of the fibres of the Heath entering it. These ferruginous peats are also very deficient of silica, though the subsoil is frequently a compound of 150 sand, 120 silica, with as much as 50 of alumina, oxide of iron 35, water not entering but running off by the surface. If the ground has not a sharp incline, the Heath is often covered with lichen and sphagnum. Even the surface of these soils is of no use, as they are so largely impregnated with iron and so deficient of sand.

There are peats, again, that overlie limestone, and are so impregnated with it as to be wholly unsuitable, especially those on the magnesian formations. It is remarkable, however, that even those formations on which there is but a thin deposit of vegetable matter, will grow plants which need peat well if undisturbed, but this, if removed, is destructive to plants in pots or in a cultivated state.

It is also necessary to make some remarks on the kinds of sand used for mixing with loam intended to be employed instead of peat. There is the sand rock, which is a compound of lime, and when burned forms the finest silver sand. In its natural condition it is simply poisonous to plants, and when washed it renders the water milky. There are also pit sands very full of iron, and nearly useless. All sands should be washed in a very fine sieve, skimming off the top. This frees them of loam or aluminous matters, and also of what those persons who use sand for cement or lime term "blacks." These spoil the work, and if not removed will also destroy the roots of plants.

Peaty turf, such as is used for fuel, is of no value for plant-culture, being almost destitute of silica. It consists of sphagnum and allied plants, frequently forming a deposit to a great depth, but it is also often found in only a thin layer. It usually occurs in low ground and saturated with water, where the subsoil is very clayey and almost without stones. This is only useful for the growth of bog plants or for fuel.—G. Abbey.

SMALL FARMS—HOW THEY CAN BE MADE TO ANSWER.—No. 5.

By Rev. William Lea, *Vicar of St. Peter's, Droitwich, and Hon. Canon of Worcester.*

Vegetables.—I have now exhausted the usual varieties of fruits with the exception of Filberts (Strawberry cultivation comes more nearly under the category of vegetables), and notwithstanding the very tempting accounts of the profit of Filbert-growing which I have seen in print, I cannot say that I have found it successful. It is stated in a pamphlet which I have before me that Cob Filberts are readily sold at £7 for 100 lbs. weight—that is, about 1*s.* 4*d.* per lb. My experience was not so fortunate, as the crop produced the odd fourpence without the shilling, so we will dismiss them from our consideration. And the point I now wish to come to is this: When a field is planted with fruit, it will be some years before the trees fully cover the ground, or there may be parts of it left open for vegetable cultivation—what will be the most profitable vegetables to grow? I mentioned the Strawberry above; and where the ground is well suited for the growth of this fruit, and sufficiently near to a market, probably few kinds of produce will bring a more profitable return. The difficulties are, that it carries very badly, and requires to be netted over where birds are numerous. I have never made an experiment as to the market value of Strawberries, but after many years' experience as a grower I may be able to throw some light on the subject to those who may wish to begin.

First, double-dig your ground and manure it heavily; then put in your runners, being careful to select first runners—*i.e.*, those nearest to the parent plant; put them in as early as you can, and not later than the middle of August, or you will not have much of a crop the first year. Plant them in rows 12 inches apart, and 12 inches between the plants. Directly the fruit is gathered hoe up every alternate row, so as to leave for the second year rows 2 feet apart, with the plants 12 inches from each other. Directly the fruit is gathered the second year, hoe up every alternate plant in the rows, so as to leave for the third year rows 2 feet apart, and plants 2 feet from each other. Clean your beds by the end of August; in November hoe them over, and put on a good surface-dressing of manure, and at the end of May, when the plants are just going out of blossom, give them a good watering with liquid manure—this will materially increase the size of the fruit. Some prefer to let the plants run all together, so that the ground is completely covered. The advantage of this plan is that the birds do not see them so plainly; the disadvantages, that the fruit is smaller, less abundant, and in a wet season worthless.

The varieties of Strawberry to be grown must depend upon your soil. Where the British Queen will succeed it should always form a part of the plantation; but it will not grow on all soils. I have never been able to do any good with it myself. The earliest of all sorts is the Black Prince, but it is hardly a Strawberry, and would not be looked at when once Keens' Seedling has been seen; still, on account of its earliness it may be worth a trial. To succeed this I should recommend Keens' Seedling and President, which last, as far as my experience goes, is the hardiest, the longest-lived, and the most prolific of all Strawberries, and one which will carry well. Then come Sir J. Paxton, where it will grow La Constante, and of later sorts Filbert Pine, Frogmore Late Pine, and Stirling Castle; but the king of all is Dr. Hogg, unequalled in size and flavour, but I fear a short-lived variety, and of a tender constitution. These are the varieties which I have found to succeed best on a light loamy soil, and on such a soil I should say that nothing would beat the President for market purposes.

I now come to the question of vegetables; for if a field is planted with fruit (trees such as Plums, Apples, or Cherries, in rows 24 feet apart, and bushes, such as Gooseberries or Currants, between them in rows 6 feet apart) for the first six or eight years, there will be room for vegetables between the rows, and also between the bushes. What varieties can be grown to the greatest profit?

In the first place I should put Onions, Garlic, or Shallots, because they interfere less with the roots of the trees than any

other vegetable; and the last especially, if the soil is in good heart, will produce a larger profit per square yard than anything else. Carrots and Parsnips may also be grown, and the latter will hold their own, and produce large roots, even if quite overshadowed by the bushes, when nothing else will succeed. But the most profitable crop for the first few years will probably be the Potato, especially the early varieties which do not make too much haulm, such as the Ashleaf, Early May, Alma, The King, and other kidneys, which are always in demand before the later Potatoes come in, and even then seem to be preferred before them. Of the later sorts the best and the most prolific (but this again is a question of soil), are the Red Regent and the Victoria, both of which will keep perfectly sound till Potatoes come in again. But if a part of a field is left open, and not planted with trees, nothing, probably, will be more profitable than Asparagus beds, if the farm is near to a good market.

With regard to manures, there is none which can be compared with farmyard manure, more especially if the crop is to be planted among bushes and fruit trees. Some persons have a prejudice against "green" manure; but I would say, When you are planting, put on every bit of manure you can scrape together, rotten if you have it; if not, green. I have seen just as good and healthy crops of Potatoes, if not better, grown from manure full of soakage wheeled straight from the pigstye, as from the well-matured heap which had accumulated during the previous year. I say, then, there is nothing like farmyard manure. It lasts for two or three seasons in the soil, while artificial manure is exhausted in one. But among artificial manures there is a difference. I have tried experiments with many varieties, and have found nothing so efficient for Potato-growing as Peruvian guano, if it can be procured unadulterated. A little goes a long way, if dropped by hand upon the set when it is planted in the ground. And this mention of manure leads to a consideration of the sources from which it is to be derived. A fruit-farmer *must* have it, and as it is not always to be purchased, he must keep a certain amount of stock to produce it. What that stock should be we will consider in another paper.

(To be continued.)

ELECTION OF ROSES.

Mr. Radclyffe, in your last, after commending the lists of Roses on the whole, thinks there are two shy bloomers, six bad growers, and six *presque pleine*, in the thirty-six.

With regard to the *presque pleine*, I think that not only some of the very best garden Roses, but some of the very finest exhibition Roses belong to this division; and though some of them are dangerous friends, in a stand, as in a hot tent, they are apt to open too rapidly and show an eye, yet, as a rule, their constitution is better than the very double ones, many of which, like La Reine, Reine du Midi, Alpaïde de Rotalier, and others, at times utterly refuse to open, and others, again, open flat and rough, like Thyra Hammerick, Souvenir de Poiteau, Baronne Prevost, &c. What Roses can be finer than Duke of Edinburgh, Xavier Olibo, Pierre Notting, Victor Verdier in their half-expanded state? There are very few Roses that will bear, as I sometimes see done, a Judge's pencil stuck into the middle to poke in and see if there is a yellow eye, and then they are condemned, because they say, "Oh! that Rose wo'n't do, it will open directly and show a yellow eye, very likely by the time the public are admitted."

There are some of the Roses which have incurved petals, like Prince Henri de Pays Bas, Felix Genero, and Louis XIV., which keep their shape longer, but many of these Roses have quite as much a yellow eye as the *presque pleine*, only on account of the incurved petal they do not show it so much.

I am induced to write this, as I am myself a great admirer of that section on account of the beauty of the bud and half and three-parts-opened flower, as instance Général Jacqueminot and La France. In my opinion, as a general rule, they are the most useful Roses that can be grown, and I should be sorry to have them discarded as exhibition blooms on account of their tendency to show, not the cloven foot, but the yellow eye when past their best.—C. P. Peach.

Everyone will agree that Mr. Peach has rendered valuable assistance to Rose-growers by canvassing the most eminent rosarians of the day for the election of the twelve best and the thirty-six best Roses. From this election we find that we have about sixty Hybrid Perpetual Roses which may be relied upon with perfect confidence as really first-rate. Those Roses which have only had one vote are, I believe, mostly excellent, but so far scarcely sufficiently accredited. Now, I propose that this election be carried a little further, and that the same able rosarians be canvassed again for their opinions as to what other Roses, besides those already elected, are really worth growing either for the garden or for exhibition. This would enable the public to understand, once and for all, what Roses are really worthy of cultivation, and nurserymen what Roses they may with perfect confidence propagate.

To carry out this desirable object I would suggest that the Roses be divided into three classes—1, Hybrid Perpetual, Bourbon, and China Roses; 2, Noisettes and Tea-scented; 3, Summer Roses, such as Paul Verdier, Miss Ingram, Paul Ricaut, &c., first-rate, but only summer Roses. I would further suggest that the electors prefix an asterisk to those Roses which, however beautiful for the exhibition table, are unsuitable for the garden, either as too tender and weak, or too unwilling to open their blooms; also that they should prefix the letter P to those Roses which are most perpetual in their habit.—R. T.

[I think your suggestion a very good one, and shall be glad to receive lists from rosarians, which I would analyse and publish the results, leaving out the thirty-six already named, naming in addition, say, thirty-six Hybrid Perpetuals and Bourbons, add the Chinese to the Teas and Noisettes, and name twenty-four and twelve summer Roses. This would give seventy-two, in addition to the thirty-six already selected. If more than these are named it adds seriously to the trouble of compilation, and 108 Roses are a goodly number, though I have little doubt twice that number will be named to obtain the requisite seventy-two.—C. P. Peach.]

ROSES—HYBRIDE REMONTANTE.

I can find neither of these words in my French dictionary, De Porquet's. There is no such word as Hybrid in Walker's Dictionary. [There is in Johnson.] There is "Hybridous—begotten between animals of different species; produced from plants of different kinds." "Remontant" is neither French nor English. I think the term Hybrid Perpetual is quite as good as Hybrid Remontant, and more generally understood, Both the French and English terms are equally applicable to the Tea-scented Noisettes, which are mules or hybrids, and likewise Remontants. The French probably derived the word from "*remonte*—new horses bought to remount the troopers." If so, Hybrid Remounts or Remounters would be an intelligible and exact translation. The verb "*remonter*—to go up again," may probably be the origin of the term. In the English part of De Porquet's dictionary "remount" is "*remonter*." I am satisfied with Hybrid Perpetuals, but if we are not to have that I can see no better term than "Hybrid Remounters."

I agree with "D.," it is difficult to get fresh terms generally adopted. The English love to copy the French, as if they had no ideas of their own. They, moreover, love to intersperse Latin, French, and Greek words, or crackjaw derivatives, into their articles to the confusion of humble readers. This is "philosophy vainly so called," because it conveys no instruction to the illiterate.

One word about "*belle tenue*" and "*se tenant bien*." No doubt they both mean "erect habit." *Ferme pédoncule* or *pédicule droit* would set the matter at rest. The English word is pedicle and not peduncle, which is Anglo-French, and is not to be found in Walker's dictionary. I cannot find either the word peduncle or pedicle in the English part of De Porquet's dictionary, but in the French part I see both *pédoncule* and *pédicule*.—W. F. Radclyffe.

MEADOWBANK.

This, the residence of T. Dawson, Esq., is at Uddingstone. It is small in extent, but well worthy of a visit. The grounds are well laid out and kept in good order, and have also the advantage of being beautifully situated on the banks of the Clyde. In taking a hurried walk through the grounds, where the modern style of flower gardening has been adopted, I noticed amongst other minor features a rather extensive collection of herbaceous plants. These, very properly, occupied a quiet

nook by themselves, but I could not, owing to want of time, inspect this collection as I very much wished to do.

No doubt most of your readers are aware that this place owes its celebrity to the extensive and select collection of Orchids which Mr. Dawson has collected, and which is now under the care of Mr. Anderson, his able gardener. The Orchid houses are numerous, principally span-roofed, with fixed upright sashes. Ventilation is obtained from the apex of the roof, and from ventilators in the side walls, fixed in such a position that the air is warmed by passing over the hot-water pipes before it reaches the plants. In the narrow span-roofed houses, 12 feet wide and under, the internal arrangement consists of thick sandstone slabs down each side with a path in the centre.

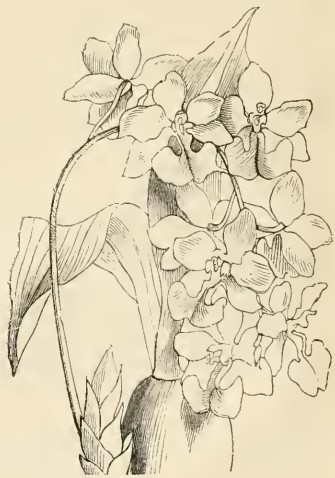
Phalænopsis amabilis.

There are several larger houses of the same description, two of which are used as show houses, one for cool-house Orchids, and the other for those requiring the temperature of the East-India house. These houses have a stage in the centre and one round the sides and ends.

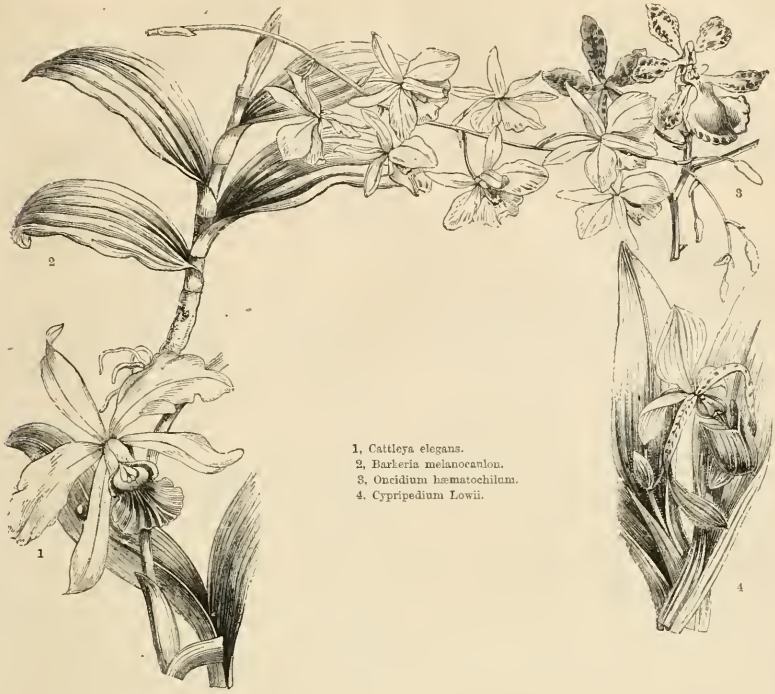
The first house I entered was 65 feet by 12 feet, in two divisions. In one compartment was a collection of Amaryllis, a class of plants which Mr. Anderson has taken in hand, and of which he also possesses many seedlings from cross-impregnated flowers. This is a class of plants not so much cultivated as they deserve to be. They cross readily with kindred species, and are easily raised from seed. The form of the flowers has been much improved by crossing with Hippeastrum pardinum, as witness the splendid flowers in the hands of the Messrs. Veitch, of Chelsea, such as A. Chelsoni, A. Leopoldi, &c.

Passing into the next division we find an East-India temperature, in which are different species of Phalænopsis, such as P. Schilleriana, of which there is a magnificent specimen. This plant, with P. amabilis and P. grandiflora, should be in all plant stoves where a night temperature of 60° can be maintained during winter. In some collections of Orchids the Phalænopsids are sometimes to be found in bad condition. I have charge of a fine specimen of P. grandiflora, which came under my care five years ago in bad health; it was removed from the compost in which it was growing at that time and the roots washed, it was then fastened to a block of wood with some fresh sphagnum round the roots. The block was placed in a pot, the space between the block and sides of the pot being filled-in with clean potsherds, and the surface covered with fresh sphagnum up to, but not over, the roots. The plant has made steady progress ever since. All the treatment it has received has consisted in giving it a little fresh sphagnum once a-year. The roots ramble over and clasp round the pot, but they are in no way disturbed. A successful exhibitor said to me the other day when I was admiring his healthy stock of Phalænopsis, "If you want to grow them well, do not disturb the roots as long as the plants are healthy. I only dip the baskets in water once a-week." At the time of my visit to Meadowbank on September 20th, P. cornu-cervi and P. rosea were in flower.

The Cattleya house also contains grand specimens of this family; indeed, what struck me most in looking over this collection of Orchids, was the size of the individual specimens and the number of flowers they produce. It is also very evident that no inferior varieties have a place. For instance, in conversing with Mr. Anderson about Cattleya Warneri, we agreed that many inferior forms of it exist in the country. The same may be said of many others. I have not yet seen a bad variety of Cattleya exoniensis, yet, fine though it is, a particular specimen I saw in flower here was surpassingly beautiful. Cattleya citrina was grown both on blocks and in pots. It does best on blocks, with the leaves hanging downwards. Odontoglossum citrosmum was thriving in the Cattleya house; it requires more heat than other Odontoglots.



Odontoglossum citrosmum



1, Cattleya elegans.
2, Barkeria melanocaulon.
3, Oncidium hæmatochilum.
4, Cypripedium Lowii.

Of course there is a house devoted to Odontoglossum Alexandræ and the allied species, Masdevallias, and others of the cool section. This is a span-roofed pit, and the plants are placed very near to the glass. There are some grand specimens of O. Alexandræ, of which no two plants are exactly alike. Everybody who has the means should grow this by the dozen or hundred if they can, as it thrives in even a cooler treatment than the Masdevallias, 40° to 45° being sufficient to winter them in, and if the temperature fall to 35° even, no harm will ensue; besides, they may be had in flower every month in the year.

Oncidiums were represented by the rare O. Rogersii, and the singular and beautiful O. Papilio, of which there were many magnificent forms, whose flowers resemble a butterfly on the wing.

In a small house were a number of plants in good health of Epidendrum erubescens. It is a very difficult plant to manage, and is generally grown in a cool house fixed on blocks of wood. Mr. Anderson had planted it out on a level surface in a medium of sphagnum moss.

The cool and tropical show houses at the time of my visit were very gay; no doubt they are kept so "all the year round." In the cool compartment Odontoglossum grande in many varieties were truly grand, rivalled only by the magnificent Vandas in the East India division. Zygopetalum maxillare was producing freely its pendant spikes of distinct flowers. Epidendrum vitellinum was rather past, but it was yet conspicuous with its very distinct orange-scarlet flowers.

Passing to the tropical show house, the distinct and recently-introduced Cattleya Dowiana was not yet over, nor C. Aclandiæ, which was also in flower. Of Aërides suavissimum, two handsome varieties were in flower. Magnificent specimens of Vanda tricolor and varieties were ranged down the centre stage; also Vanda cærulea, of small size, but producing nice spikes of its large pale blue flowers.

Vanda suavis.

Many species of Ladies' Slipper are grown. These are at all times interesting, as the leaves of most of them are prettily marked. I noted Cypripedium Dayanum, a most distinct and beautiful species both as regards its beautifully-variegated leaves and flowers. C. Farricanum is also very pretty and distinct.

I will conclude by advising all lovers of this class of plants to visit Meadowbank, and by thanking Mr. Anderson for his kindness in showing me through, and unreservedly answering all the questions I put to him concerning the treatment of his favourites.—J. Douglas.

BOWOOD.—No. 2.

The Seat of the Marquis of Lansdowne.

We left off at the kitchen garden. This is situated on the north side of the mansion, and contains 5½ acres within the walls, which vary from 12 to 14 feet in height; the area included by them is divided into four compartments. There is, besides, in another part of the grounds a kitchen garden of about 2½ acres, in which Cabbageworts, Asparagus, Sea-kale, Rhubarb, Potatoes, and similar crops are grown; there is also an orchard of 6 acres. The soil and subsoil of the walled garden are naturally unfavourable to the growth of fruit trees, containing a large amount of hungry, coarse, ferruginous sand, with rock beneath, through the fissures of which the water rises to within 3 feet of the surface. On this account the borders have for the most part been formed artificially of turfy loam, which had to be carted a distance of several miles. These borders are generally 12 feet wide, and the great labour which has been expended in making them has been repaid by excellent crops. The trees have evidently been carefully managed from their youth, and among the horizontal-trained Pear trees are some of the best examples of that mode of training anywhere to be found. On the opposite side of the 9-feet walks, all of which are edged with stone, are also horizontally-trained Apple and Pear trees on espaliers of iron wire, and the space between them and the walk was in one border planted with Picotees and Carnations, to furnish cut flowers. The fan-trained Pears are large, and like the horizontals very well trained; so, too, are some single and double upright cordons between the trees. The Peach and Apricot walls have copings which project on the south side 4 inches beyond the face of the wall, and temporary copings are put on in spring. One wall is entirely occupied with Green Gage Plums, and on a north aspect are Plums for late use, and Morello Cherries, and borders with the same aspect are planted with Currants, which are kept covered to retard them in order to afford a late supply, and Lily of the Valley for forcing. On some of the walls are Fig trees, several of which though very old still bear good crops. To break the force of the wind Arbor-Vitæ hedges extend across the borders in parts exposed to the sweep of eddying breezes, and in front of some of the houses similar hedges are employed with the same object.

We will now look through the vineries and other houses, which are for the most part lean-to's facing the south. A half-span Muscat house 30 long, and a large vinery planted with Black Hamburghs, which are generally started about Christmas, may be dismissed without further remark, than that at the time of our visit each was filled with Geraniums. In the late Muscat house the Vines had been lifted in 1870, and a fresh border made; they had pushed roots vigorously, and the crop, about half of which was cut, was also good. The late vinery contained such standard kinds as West's St. Peter's and Lady Downe's; and a house planted with Canon Hall Muscat, a noble Grape when well grown, but a shy setter, was undergoing repair. Mr. Scammell prefers fruiting it on the young wood instead of on the spurs. In the early house the spur-pruned Vines were breaking at Christmas; on the back shelf were Strawberries for March, and in front Orange trees. A succession house contained Black Hamburgh and Buckland Sweetwater for ripening in June. Another range about 50 feet long by 15 or 16 feet wide, is filled with large old Black Hamburgh Vines, which it is intended to replace with Lady Downe's and other late Grapes. At present it is occupied with Chinese Primulas, Cinerarias, and bedding plants. The last vinery to be noticed is one fine-heated, containing old Vines lifted the year before last (1870), and which bore a good crop last season. This likewise was profitably occupied with bedding plants, Azaleas, and Mignonette.

Of the Peach houses, three in number, the trees in the earliest were coming into flower at Christmas, and will most likely produce fruit the first week in May. This house, about 9 feet wide, has a steep roof well calculated to transmit and not reflect the sun's rays early in the year, and so to economise natural heat; still ample provision is made for artificial heat, for there are three rows of 4-inch pipes. At the back are two shelves under the hip where Strawberries are forced. The trees in the succession house, which is flue-heated, had just been tied-in; the varieties were Royal George and Bellegarde Peaches, and Murrey Nectarine. Those in the late Peach house, being dormant, call for no remark.

The Pine pits, which are about 13 feet wide, and have outside chambers for leaves to afford bottom heat, contain a fine stock of healthy fruiting and succession plants. Black Jamaica and Smooth-leaved Cayenne are the varieties chiefly grown for winter fruiting, and the Ripley Queen for summer. Providence is also ripened to a good size. In other forcing houses were Dwarf Kidney Beans, Asparagus, and a number of Pines, every inch of space being fully occupied. In the Cucumber house, 30 feet by 12, Telegraph was bearing well; Azalea amœna, a charming little kind for spring decoration, was likewise being forced, as well as Gardenias and some other plants. One of the most useful structures in the garden is the orchard house, a little more than 200 feet long by 10 feet wide, and having a curvilinear roof placed against a wall facing south. The back sashes lift to afford top ventilation, and those in front are pivot-hung to push outwards. Peaches and Nectarines are trained on a curved trellis in front. Half a dozen Plum trees, taken from the open ground, beheaded, and grafted with Green Gage, had borne well last year. The other occupants of this house were Strawberries, to be protected until required for forcing, and Cos Lettuces, of which a large number had been taken up from the borders to be planted out in spring. In a quarter snugly hedged round with Arbor-Vitæ are frames filled with a fine healthy stock of Neapolitan Violets and half-hardy plants, pits for Strawberry-forcing, &c.

Plant-growing is not pursued to any great extent at Bowood, the principal object being to produce plants to meet the large demands for the decoration of the mansion and flowers for bouquets and similar purposes. A small stove contains Bougainvillea glabra planted in a border with bottom heat, and freely producing its rosy bracts on the roof; also a number of plants of the brilliant and useful Poinsettia pulcherrima in 4-inch as well as in larger pots. Dracænas, Marantas, Euphorbias, Eucharis amazonica, Begonias, and other plants. Another plant house is chiefly filled with Azaleas and Camellias; on the roof is a plant of Tacsonia Van-Volxemi, which flowers from spring till late in autumn. Outside of this house is a flourishing plant of the New Zealand Flax, which though almost hardy is not quite so, being cut down to the ground in severe weather unless afforded a little temporary protection. In front are two large tufts of the Pampas Grass, one of which had produced the year before a hundred of its tall silvery plumes. The only other houses we need notice are a temporary orangery, in which are some immense trees obtained from France, weighing with the tubs and soil more than 3 tons each, and, consequently, very troublesome to move to the terraces in summer, and another orangery forming part of the mansion, and as architectural in its character as the one just referred to is not. Here, too, are some large and handsome Orange trees in tubs, Bays, American Aloes, &c. Outside the Pomegranate, Bignonia radicans, and Japanese Honeysuckle serve to clothe the walls. The fruit-room, 50 feet long by 14 or 15 feet wide, is fitted-up with open-sparred shelves, and there are sliding shutters in the roof, which, except when fruit is required, are kept closed and the room in darkness.

We have before said that the glory of Bowood is its pleasure grounds, and we have also remarked how well these are kept notwithstanding their great extent; but it would not be just to the excellent gardener, Mr. Scammell, to omit adding that the useful is as carefully attended to as the ornamental, and that the fruit and kitchen garden and hothouses, as regards neatness and good cultivation, are on a par with the pleasure grounds.

Cultivated Nature.—Between Nature in her wild state and Nature under skilful management there is as much difference in appearance as between a savage and a peer, and in productive power as between a wandering Caffre and a practised artisan. A few days ago we went through Mr. Crook's gardens at Blackpill, and were astonished to find in it an Apple tree—the Crook Seedling, as it is now to be called—bearing a third

crop this season. Previously we had examined another—the Peach Apple, bearing its second crop—no scanty sprinkling of fruit, but in both instances to be reckoned by hundreds. Mr. Crook then showed us some Pumpkins, one of which weighed 130 lbs., and six of which weighed 5 cwt.! He then let us see a marvellous breed of ducks—the West Cornwall (the grandpapa of which had been given him by Captain Ford of Swansea), in one of whose nests in the garden he had a few days previously found fifty eggs! The strong presumption is that they were all laid by one duck, as the daily produce of the others had been duly accounted for. The same lucky cultivator of Nature avers that he has a hen which has scarcely stopped laying for the last twelve months, has not moulted during that period, and is laying now! Has the golden age begun? People had better go to Mr. Crook to learn "how to make fowls pay."—(*The Cambrian.*)

MRS. PINCE GRAPE.

I would not trouble you with any remarks about this Grape had I not formed a very different opinion of it to that of Mr. Donaldson. He declares that he has no hesitation in saying it is the best late black Grape in cultivation. I know Mr. Donaldson is a good Grape-grower, and his opinion ought to be worth something to Vine-planters; but if he has formed it from the Vines under his own care, and from the state and appearance of the crop at this time of the year, I think that he is premature.

This is not the time either to condemn or praise a Grape for its late-keeping, as many others as well as myself have not yet ceased sending to table the old Black Hamburgh, which is well known to be anything but a late Grape. If Mr. Donaldson succeed in keeping his crop of Mrs. Pince Grapes fresh and plump in berry until the middle of next March, he will have accomplished what very few, if any, have hitherto done; and if he send a dish to the Fruit Committee in that month, so that it may be compared with the Lady Downe's Grape, he will induce many gardeners to alter their opinions about this Grape, and deserve the thanks of them all. Mr. Donaldson says this is the first year he has succeeded in growing them to perfection, as neither in the first nor second year of fruiting were they satisfactory; therefore I am inclined to think that the age of the Vines has something to do with bringing about these good results. It is well known that if a Vine produces better fruit at one particular part of its life it is pretty sure to be when it is young. I nevertheless admire Mr. Donaldson's skill, and hope to see more of the Grape towards the spring.

I agree with much of what the Editors say, for I have known opinions expressed about new Grapes when there has been only the raiser's notice to signify that a new Grape was to be sent out, to say nothing of the adverse opinions of it after it had been seen, but not tried. I believe Mrs. Pince was thus-treated by many at first, but most of those gardeners who had the opportunity of trying it did so, and I know of some really first-rate Grape-growers who applied the utmost of their skill in order to prove its title to being the best late black Grape, but failed at the last to discover its pretensions. There is no lack of vigour in the Vine, and with care it has been found to set its fruit well, and swell-off evenly. The flavour is known to be good, but its great failure appears to be in the colour, which cannot compare with that of Alicante and Lady Downe's, and before the new year comes in, it shrivels-up so as to become unsightly, while all other popular late sorts are plump, fresh, and good.

I do not myself grow Mrs. Pince Grape, but the above description is taken from what I have witnessed in a dozen places this autumn and winter, so that Mr. Donaldson has reason to be proud of his crop, and no one wishes more that he may succeed in preserving it plump and fresh throughout the next two months than—Thomas Record.

NOTES ON THE LILIES.

Thanking my friend, Major Trevor Clarke, for the good information which he has given us (page 10), I proceed to answer his queries as to Lilies seeding. Here, at Weybridge, L. auratum seeds freely out of doors, L. longiflorum occasionally. In the orchard house, L. auratum, speciosum, and Wilsoni seed freely. Of L. pendulilorum I had one good seed-pod. L. longiflorum seeds freely. By the same token we have now in a seed-pan a beautiful flower just expanding; the seed was sown November 26th, 1868. I have, unfortunately, lost the register of the father, but I am almost sure that the L. longiflorum was impregnated by pollen either of L. Wilsoni or of a very fine variety of L. Thunbergianum. The seedlings are very strong, the leaves larger than those of L. longiflorum usually are, and the stems quite dark, but otherwise I can so far detect no change. The reason for the late blooming of the present flower appears to be this: One of its sisters bloomed beautifully in early summer, the new blooming stem was then growing weakly as though the seed-pan was deep, the earth was not enough for all the pulls on it, and the roots were all away among the crocks at the bottom, so we wedged the pan down into a half lard-keg filled with good peat; the plants then all went ahead.

Since my last notes (page 502), there has been an addition to the beautiful family, in the shape of three if not of new species, at least of very distinct varieties of Lilies imported by Messrs. Teutschel, of Colchester. Two of them, called A and B, differ only in size and, perhaps, width of opening; they are, in the drawings exhibited, a purplish-pink-shaded compound of L. longiflorum and L. auratum without spots or bands. I hope some other grower will keep the ball rolling. The now happily-expanded Journal "gives ample room and verge enough," the characters of L. to trace.—George F. Wilson.

OBSERVATIONS ON CAULIFLOWERS.

In regard to this useful vegetable, the past few seasons have not been without their instructive lessons as to the soils and other circumstances most suited to its successful cultivation. From 1868 to 1870 inclusive, excessively dry summers have been the lot of at least a great part of the United Kingdom—a state of things very trying, to say the least of it, to the vegetable-grower. Prominent amongst a goodly list of garden crops which suffer severely from drought stands the Cauliflower; and in very light soils the effects (which many a gardener knows no doubt frequently to his cost) are most clearly illustrated, especially if such soils be shallow and gravelly. The best, I had almost said the only, remedy in such circumstances is thick mulchings of the best material that can be spared—if rotten manure, so much the better—and copious supplies of liquid manure at stated intervals during the drought. In fact, unless the soil be approaching to deep clay, mulching may be judiciously practised with every hope of good results. In 1869 we found plants treated in this way far surpass those that had the benefit of the "latter rain," planted only a fortnight later. The old system of potting a number of plants in autumn, and protecting from frost in any cold plant-structure, is an excellent way of securing early produce; but they should not by any means be allowed to get pot-bound, as is sometimes the case. This can be avoided by not using too small pots. Use 3-inch pots instead of the smaller sizes, which are generally as often used. When weather is unfavourable for planting in spring, the plants suffer less from drought in the large pots. When dry pot-bound plants are put out, buttoning invariably follows. The past season here has been more favourable for second and third plantings than it has been farther east for the last three years, but late plantations have been a failure. I attribute this to the prevalence of heavy cold rains almost incessantly from end of June to August; while in seasons immediately preceding, the heat of the earth counteracted the cooling tendency of late rains, and these were therefore beneficial to late crops. The vegetable quarters here are objects of more interest to the proprietor than the plant houses, which fact has led me to pen the foregoing notes on one of a variety of vegetables demanding most of our resources, and which may interest some of your readers.—David Mackie, *Dunlossit Castle, Islay* (in *The Gardener.*)

MARÉCHAL NIEL WORKED ON GLOIRE DE DIJON FOR FORCING.

Let me recommend anyone who loves this glorious Rose to force it when worked on the Gloire de Dijon. I bought a quantity of trees in pots, and put them in heat in October, and on Christmas-day they began to bloom, and on January 4th I picked the finest bloom I have ever seen. I have never, since I began to grow Roses, been so delighted with anything as the way in which these Maréchal Niels are blooming. I have them budded on the Briar in the same pit, but the size and form of the blooms is not to be compared with those of the former trees. Will Mr. Radclyffe tell me what Roses, mentioned in

the lists he refers to, will not do on the Manetti stock? Of course I do not allude to Teas.—J. B. M. Camm.

STRAWBERRY CULTURE AND VARIETIES.

Your correspondent "T. G." (see page 9), invites discussion on this fruit. My experience on Strawberry-growing ranges over thirty years, during that time I have grown them in many parts of England—in the stony stubborn land of Sussex, the gravelly soil of Kent, and the blowing sands of Surrey, and I have been successful with them in all places, consequently I believe Strawberries can, with proper treatment, be grown anywhere.

As an illustration of what may be done with Strawberries, I may mention that the Rev. H. Charlton, rector of our adjoining parish, Easten, told me he had been at Easten twenty years, but could never grow good Strawberries—the soil being too light. I gave him the same advice I give everybody—namely, dig deeply, manure heavily, plant early, and never allow the plants to remain after the second crop. This he has done with the very best results; in fact the fruit grown by him last season was generally admired.

Dr. Hogg Strawberry here is really something to admire—fine large showy fruit of most excellent flavour, also a prodigious bearer.

My favourite six varieties are British Queen, Dr. Hogg, Black Bess, a variety too little known, Frogmore Royal Pine, Sir Charles Napier, and Keens' Seedling. If I were asked which I consider the best Strawberry grown, I should, without any hesitation, answer, Sir Charles Napier. To see its yearling plants averaging two hundred flowers to each plant when ripe, is a sight not easily forgotten, and it gladdens my eyes yearly. —R. Gilbert, *Burghley*.

The praises of Dr. Hogg Strawberry have been so much in everybody's mouth, and dropping from everybody's pen, that it sounds rather astonishing to hear from anyone that it has caused disappointment; still it seems now to be about to undergo the same ordeal as nearly all other novelties.

To state my own experience of it, I must say it entirely coincides with that of your correspondent in last week's impression. Until I saw these remarks I refrained from saying anything against a variety that seemed to be of universally recognised merit, and I thought that the plants which I had must have been spurious. This opinion may be correct yet, therefore I am anxious to know whether others have experienced similar failures. Three years ago, relying upon public testimony, I planted along with other sorts ten rows of Dr. Hogg Strawberry, about 50 yards long; all the other sorts grew very well, and bore well the following summer, but I was very much disappointed with the behaviour of Dr. Hogg. The plants made but a poor and stunted growth, and what fruit they bore certainly had a resemblance to that of British Queen, but the berries were so few and far between as not to be worth gathering. The ground received no other preparation but manure dug-in in the ordinary way.

Although my faith was somewhat shaken, I tried to see what kind treatment would do. I selected a piece of ground that I thought suitable, had it trenched 2 feet deep, and the subsoil dug over in the bottom with a liberal dressing of manure. This operation completed, a good dressing of rotten manure and a quantity of half-inch bones were dug into the top spit. The best runners that could be procured of this and other varieties were planted in this ground last spring; these are Keens' Seedling, President, Myatt's Eleanor, and another early sort of which I have not the name, all of which made a good growth last summer. I regret to say, however, that Dr. Hogg Strawberry, if it is that variety which I have, shows the same poor stunted growth as in the former situation. I intend to let it remain to see how it turns out. Should it be no better than I expect, I shall bid good-bye to that variety for ever.—A Yorkey.

COOKING POTATOES.

Having tried various ways of cooking this valuable esculent, all more or less faulty, a short time since the following method was recommended to us; and as it combines simplicity with economy, perhaps some of your numerous readers might like to try it. Take a very narrow ring of the skin off the Potatoes before boiling (in kidneys the ring should be taken long ways), and when they are ready for table the remainder will fall off in two pieces, leaving the Potatoes like "flour-balls." We have found Potatoes so treated much better than when boiled without the skin being cut; and as the skin leaves the Potatoes in the process of cooking, it does away with the objectionable method of peeling afterwards. We also adopt the practice of putting new Potatoes in boiling water, and matured ones in cold water, not forgetting the salt in either case.—(*The Gardener.*)

THE ROYAL HORTICULTURAL SOCIETY'S EXAMINATION OF GARDENERS.

The following are the results of the examination of gardeners, held on December 12th, 1871:—

	Fruit and Vegetable Culture.		Floriculture.	
	Marks.	Certificates.	Marks.	Certificates.
1. C. Adams, Retford	390	3rd.	390	3rd.
2. William Falconer, Royal Gardens, Kew	910	1st.	1080	1st.
4. John Jones, Royal Gardens, Kew	1140	1st.	1100	1st.
5. James A. Smith, Royal Gardens, Kew	930	1st.	740	2nd.
6. Charles Herbert, R.H.S. Chiswick	730	2nd.	460	3rd.
7. A. W. Maynard, R.H.S. Chiswick	660	2nd.	700	2nd.

The Examiner in Floriculture reports that Nos. 2 and 4 have given very intelligent replies to the questions.

NOTES AND GLEANINGS.

Messrs. Carter & Co. offer at the Royal Horticultural Society's Meetings in 1872 the following prizes for vegetables (to be grown by gentlemen's gardeners, or amateurs, without forcing, in the open ground):—March 20th, first prize, £1 10s., second, £1, for two brace of winter Cucumbers, to include Carter's Champion. May 15th, first prize, £1 10s., for a dish (half a peck) of Carter's First Crop Pea; second, £1, for a dish (half a peck) of early Peas, any variety. June, at Birmingham Show, the "Carter" Challenge Cup, value £52 10s., and first prize, £10, second, £3, for a collection of vegetables (twenty-four dishes), to include as follows:—Half a peck each of Laxton's Alpha, Laxton's Quality, Laxton's Supreme, Carter's First Crop, Carter's White Gem, and Carter's Hundredfold Peas; Carter's Covent Garden Garnishing Parsley, Cox's Golden Gem Melon, Naseby Mammoth and Marzagole Onions, French Breakfast Radish, and Carter's Champion Cucumber. July 17th, first prize, £2 2s., second, £1 1s., for three brace of Cucumbers, and four dishes of Lettuce, to include Carter's Giant White Cos and All the Year Round. August 21st, first prize, £2 2s., second, £1 1s., for four dishes (quarter peck each) of Runners and Dwarf Kidney Beans, to include Carter's Champion Runners. September 18th, first prize, £2 2s., second, £1 1s., for three dishes of Beet, to include Carter's Perfection of Beets; and six dishes of Onions, to include the New Giant Rocca, New Giant White Tripoli, and New Red Italian Tripoli. October 2nd, first prize, £2 2s., second, £1 1s., for six dishes of Potatoes—namely, three dishes of White or Pink Round Potatoes, and three dishes of White or Pink Kidney Potatoes, to include Carter's Ashtop Fluke. November 6th, first prize £2 2s., second, £1 1s., for dishes of the following:—Carter's Little Pixie Savoy, Carter's Garnishing Kale, Brussels Sprouts, and Carter's Dwarf Mammoth Cauliflower. December 4th, first prize £2 2s., second, £1 1s., for a collection of vegetables (twelve varieties), to include Parsnips, Lecks, Salsafy, Scorzonera, Carter's Perfection of Beets, and Carter's Dwarf Crimson Celery. The conditions may be had from Messrs. Carter.

A NEW WAY TO MAKE FRUIT TREES.

Mr. Sullivan Hutchinson, of Bristol, N. H., received letters patent last May for a new and novel invention for making productive fruit trees in a single year from fruit-bearing limbs. Limbs that can be spared from trees that bear desirable fruit are transformed into independent trees which will bear right along, just as though they had not been severed from the parent stock, and in a short time become fine thrifty trees, retaining the habits of the trees from which they were taken. This is what Mr. Hutchinson claims his invention will do. From the imperfect description we have had of the process, it is impossible to give a very clear idea of how the thing is done. Into the limb, however, which is intended for the future tree, small roots are grafted just above where the limb is severed. Below these roots the branch is girdled. About and below the roots is placed a box filled with earth. This operation is per-

formed in the spring. During the summer the roots grow, and life is thus established between them and the limb above. In autumn the limb is severed at the place where it was girded, and set in the ground in the same way any young tree would be. The next year, according to Mr. Hutchinson's statement, this new tree will bear fruit just as though it had not been cut from the parent tree.

To what extent this operation may be carried, and how successful it may prove, remains to be seen. We have no doubt Mr. Hutchinson has demonstrated that the new trees will produce fruit at once, but we suppose sufficient time has not elapsed since his experiments commenced to determine what effect early bearing may have upon their future growth. That a young tree can bear fruit to any extent and at the same time put on a vigorous and thrifty growth, is not in accordance with our observation. And we suspect that Mr. Hutchinson will fail to produce very healthy trees from the application of his new discovery. We shall expect in a few years to hear that his trees have died; or at any rate that they have become so feeble that they will cease both to produce fruit and to grow. If it shall prove otherwise, the discovery is an important one.

Experiments to a considerable extent have been made in Bristol and New Hampton, and we hear that farmers in various parts of the State are buying town and farm rights with the intention of testing the practicability of this new system of producing early-bearing fruit trees. If successful, a complete revolution in our manner of obtaining Apple trees will be the result. Instead of buying trees from the nursery which require from ten to twenty years to come into bearing condition, the limbs from our old trees will be converted into new ones that will give us fruit at once. While we have no great expectations in regard to this new process, we have thought it of sufficient importance to call the attention of our readers to it, who can for themselves make such inquiries and investigations as the subject would seem to merit.—(*American Gardener's Monthly.*)

SOOT FOR ORANGES—ORANGES UNDER VINES.

I SEND a portion of a twig, and also an Orange, to show the effects of a free use of soot for top-dressing the pots in intensifying the colour of both leaves and fruit. The twig is taken from a Silver Orange; the fruit I had from a St. Michael's, but the skin is thick, although the pulp is sweet.

These Oranges have been under my Vines in the vinery all the year round, the heat during the last two months has been kept at about 50°. I have Tangierine Oranges in the same house ripe and sweet, the leaves equally green and luxuriant. I use the syringe frequently, and often apply liquid manure, which carries down the soot from the surface of the pot.—J. C. BARNHAM, *Norwich.*

[The foliage of the twig was intensely dark green and healthy. The fruit small; rind very thick; and flesh juicy, sweet, well-flavoured, and seedless.—EDS.]

"LES PROMENADES DE PARIS."

WE concluded our last notice of M. Alphand's splendid work with the Grande Cascade de Longchamps; and not inappropriately do we return to the subject with a view of the Grand Lac of the Bois de Boulogne. This great lake was dug out in 1853 and 1854, and although in a somewhat permeable soil, it has remained quite perfect. It occupies a superficial extent of 190,000 metres, or about forty-three acres, and it contains two islands of the extent of 80,100 square metres. To prevent the soakage of the water the sloping sides of the lake have been built with calcareous blocks up to the edge of the water, and the bed is formed of a layer of concrete 4 inches thick, well rammed, and then plastered over with a coat of mortar 1¼ inch thick. The mortar is composed of three parts sand and one part hydraulic lime. The concrete is composed of two parts of this mortar and three parts of siliceous gravel.

We come now to Chapter VI. in our analysis of the book, and this we find devoted to the forest plantations, turf, and gardening works of the Bois. This part is very richly illustrated with portraits of the finest specimens of trees, and of the landscape effects produced by the skilful grouping of the forest and ornamental trees used in the planting. Among the finest of the former are *figs.* 33 and 34, Thuja gigantea and Araucaria imbricata, and fine specimens of Cunninghamia sinensis and Larix europæa pendula, of which we reproduce the figure. Not the least interesting and instructive of this chapter is that portion which treats of planting the avenue trees, and the use of the protectors and supports; also the manner of transplanting large trees, which is very fully illustrated, and which is performed with an apparatus which appears to be at once simple and effective. One of the most useful parts of this chapter to the practical man is that which treats of the clumps and the style of planting, with a list of the trees, shrubs, and flowers with which each is planted, and also of the flower beds distributed throughout the Bois.

Chapter VII. is devoted entirely to architectural works, with ground plans and elevations of the lodges, gates, summer-houses, and restaurants that are distributed throughout the Bois. Chapter VIII. treats of those parts of the Bois which have been leased out for special purposes; one of these is the Pré Catelan, a reserved piece of ground consisting of about seventeen acres, which was enclosed by the city of Paris, and converted into an ornamental garden, with places of amusement, buffets, aquarium, dairy, photography, music, and all manner of attractions. The racecourse of Longchamps is another of these, a skating establishment is a third, and, perhaps, the most important of all to our readers will be the Jardin d'Acclimatation. Those who have seen and remember that charming retreat find here a lasting representation of that which we believe suffered, perhaps, more than any other part during the sad events which occurred during the past year in Paris. The close of this chapter is occupied with very useful details and illustrations of the ice-houses in the Bois. We shall not dwell on the following chapter, which is entirely given up to the formation of the Artesian wells which supply the whole of the water for the Bois—works of wonderful engineering skill and ability. Here every detail is given of the machinery and apparatus employed.

Chapter X. introduces us to that wonderful gardening establishment of the city of Paris, La Muette, lately the scene of the great strife between the Commune and the Versailles troops. M. André thus described La Muette in our tenth volume:—

"Situated near one of the entrances to the Bois du Boulogne, the La Muette gate, at the extremity of the fashionable quarter of Passy, this establishment covers an area of nearly five acres between the Rue de la Tour, the Avenue de l'Empereur, and the old historical castle of La Muette. The railway between Auteuil and St. Lazare cuts the ground into two unequal parts, of which the smaller is taken up by frames, the orangery, sheds, cellars, &c.

"The frames are more especially intended for raising plants from seed, and for the extensive propagation of softwooded plants for bedding, such as Pelargoniums, Verbenas, Calceolarias, Salvias, Fuchsias, Chrysanthemum frutescens, &c. There are altogether 2900 lights set in straight lines, and arranged in sections according to the description of plants grown in each. The frames are shortly to be replaced by a range of fifty low houses communicating with each other, and forming the most complete assemblage of glass houses ever seen. Each section is in charge of an under-foreman under the general direction of the foreman, and he has two or three assistants, with whose aid he has to manage from 100 to 150 lights. He alone is responsible for the plants, also for the breakage of glass, and other casualties arising from carelessness, and as a compensation he receives a small monthly allowance. The advantages of this system are, that the workman takes better care of the plants and materials committed to his charge, economy is consequently secured, and the men, being confined to one department, speedily gain great experience of the particular plants with which they are engaged. To give an idea of the immense number of plants raised at the Fleuriste de la Meutte (that is the name of the establishment), I may state that it amounts to nearly 3,000,000 a-year, Pelargoniums alone counting for 290,000, Cannas for 70,000, and other principal genera in proportion.

"The orangery or conservatory, constructed in a very economical manner, is 226 feet in length, and is used for the protection in winter of hardwooded plants taken up in autumn for planting-out in the following year. A large shed of the best construction serves to shelter soils, peat, and various composts, as well as spades, rakes, watering-pots, and light tools. Down the middle for the entire length of the shed runs a table 13 feet wide, at which sixty men can pot with freedom the innumerable plants struck from cuttings in the frames. Spacious cellars, 9 feet 10 inches high, cut out of the rock at great expense and at a considerable depth below the surface, extend beneath the frames. They are intended for protecting

in winter tubers and rhizomes, such as those of Dahlias, Cannas, &c., taken up in autumn. They may also be used as a workshop for the gardeners in severe frosts, and as gas will shortly be laid on, they will be still better adapted for the purpose.

"On the other side of the railway are the trial ground and glass houses. Whenever a new plant is announced it is purchased at any price, and here tried, for the city of Paris will not lag behind in the race of gardening progress. If the plant is hardy it is grown on trial out of doors along with kindred plants, and under different modes of culture, and after two or three years' experience it is adopted or rejected; but it must possess many good qualities to dethrone its rivals, and be extensively propagated. The effect is here studied, especially in masses of one species or variety, rather than in heterogeneous assemblages of plants without unity or harmony. The trial is all the more severe, because long experience has taught mistrust of the high-sounding, often specious, descriptions given by dealers in novelties. If the plant is adopted it is sent to Vincennes, where it can be propagated in such numbers, and over an extent of ground, that it could not be at La Muette.

"The houses, which have been successively erected from 1858 to the present time, are not equalled in extent in any other part of France. They consist of twenty-one ranges, divided into sections according to the mode of culture required by the different classes of the plants, and cover an area of 95,800 square feet. The largest house has an area of 18,222 square feet, is 31½ feet in height in the centre, and is in three compartments. The central one is filled with a splendid collection of Camellias from 15 to 23 feet high, planted out, and several of them once formed part of the celebrated collection of the Empress Joséphine at Malmaison. Of the two side divisions one is devoted to the protection of those ornamental-foliaged plants which have risen so much in favour during the last few years. There may be seen trees of Wigandia, Nicotiana wigandioides, which is covered in winter with superb drooping panicles of white flowers, Montagnæas, Polymnia, Aralia papyrifera, and many other handsome tropical plants. The division on the other side contains a number of large specimen Palms, Pandanuses, and Cycads, which are almost unrivalled. Among them are magnificent examples of Sabal Blackburniana, Seaforthia, Pandanus, Phœnix, Thrinax, Livistonia, Zamia, Cycas, Ceratozamia, &c., not to mention a numerous collection of novelties, in fine condition, amounting to upwards of 390 species. Another large house, in three spans, holds the remainder of the collection of large Camellias; these are in tubs, and while those planted out afford a multitude of cut blooms, these are used to decorate the apartments of the Hotel de Ville at the great balls given by the Prefect of the Seine; indeed, all the large stove and greenhouse plants are principally grown for this purpose. Ordinary greenhouse plants, such as Azaleas, Acacias, Epacrises, Heaths, &c., are grown along with the Camellias, and receive much the same treatment as regards culture.

Larix europæa pendula.

"A square pavilion, filled with very tall Palms, Dracænas, Ficus, Aralia, &c., forms a vestibule to a high lean-to containing a collection of no less than 110 species of Ficus. Ficus elastica (Urostigma elasticum), or the Indianrubber tree, takes up the greatest amount of room, although there are some other species of nearly equal merit for beds of peat soil out of doors in summer.

"Further on, in sections according to the description of plants grown in them, are large and fine houses devoted to Dracænas, to Aroids, to Ferns, to large-leaved Solanums, to Begonias, to Musas, to Hibiscus, to Pelargonium grandiflorum, to large Caladiums, &c. Lastly, other two houses deserve special mention; these are the propagating-house and that which goes by the name of the 'serre de sevrage.'

"The propagating-house is employed for the rapid propagation of all those hothouse and hardy plants that do not strike readily in frames, and the appliances are such as are nowhere else to be seen. It is impossible, however, to convey a clear idea of the arrangements from mere description; suffice it, therefore, to say that there are shelves all round, and, besides, two bark beds, in the interior of which shelves rise in gradation like the steps of a stair, and under these run the hot-water pipes enclosed by sheets of iron. The pipes, sixteen in number, are 4¾ inches in diameter, and run all round the house. Being thus confined within the pit they maintain the heat of the tan in which the pots are plunged, and afford that degree of bottom heat which is so favourable to the emission of roots. The step-like arrangement of the shelves covered with tan, on which bell-glasses are placed, allows of the young plants being kept very close to the glass. Six young gardeners are employed through-

Grand Lac, Bois de Boulogne.

out the year in propagating, and for plants difficult to strike or raise from seed special means are provided. This house furnishes about a million of young plants every year.

"The 'serre de sevrage' is that in which the young plants are placed as soon as they have recovered from their first transplantation or potting, and when they are well established they are removed to their respective houses or frames to make way for new comers. A portion of this house is occupied with choice specimens of new stove plants on trial, or for propagation.

"I may add that the other branches of this establishment, such as seed-rooms, storehouses, &c., are well organised, and that the regulations are most judicious, and so, too, are those with regard to the superintendence, order, and discipline of the men. Lectures on the theory and practice of horticulture are periodically given by the heads of departments to the workmen and apprentices, and discussions held. The expenditure for this great establishment does not exceed £8800 a-year."

WORK FOR THE WEEK.

KITCHEN GARDEN.

As has been before stated, spare ground should now be dug and ridged; indeed, trenched, if time permit. Where a systematic rotation of crops is carried out, it is an excellent plan to trench all the kitchen garden successively in the course of three years. The trenching to be performed in each year, should be on the ground intended for tap-rooted plants—such as Carrots and Parsnips; and in forming new plantations of Strawberries, Raspberries, and bush fruit if the subsoil be stiff, sour, and wet, work it well up, and drain it. A good coat of cinder ashes well worked into it, serves to facilitate the passage of water and air. Thorough drainage should be performed at once, as now there is more ground vacant than at any other season of the year. If the ground have a gentle slope to the south, the main drains should be formed against the descent at the depth of 3 feet 6 inches. They are of round draining tiles 2 inches in diameter, and at the distance of 40 yards apart, with a layer of broken stones 4 inches in thickness, and a thin covering of heath turf to prevent the earth mixing with the draining materials above. Side drains should be introduced 2 feet 6 inches deep, and about 16 feet apart, with tiles 1½ inch in diameter, on the same principle as the main drain. Manuring and trenching must follow afterwards. *Cauliflower* plants under hand-lights will now require surface-stirring and a dressing of charred material. The same treatment will be found alike beneficial to the plantations of early *Cabbages*, to preserve them from the ravages of slugs. Any vacancies in the *Herb* beds should in favourable weather be replenished, and if new plantations are required, an accessible situation should be chosen in consequence of the frequent demand for them. If former directions have been carried out in making sowings of *Peas* and *Beans*, second sowings might now be made of the double-blossomed Early-frame Peas. This variety of Pea is better in quality than many of the newer kinds, and deserves a place in all gardens where choice vegetables are esteemed. To grow them in perfection there should be allowed 5 feet between the rows; a sowing of soot on the seed, and the drills filled up with some fresh loam, if any can be spared; and when the crops make their appearance, a dressing of charred materials will not only promote their growth, but will check the attack of slugs.

FRUIT GARDEN.

Fruit trees on the walls should have a good coating of half-decayed manure over the roots as a mulching, and where young trees of Peaches and Nectarines were planted fourteen months ago, if two wheelbarrows of charred ashes are now spread over the surface on the roots of each tree, this will encourage it to make an extraordinary growth during the following summer. Pruning, training, and nailing such fruit trees as furnish walls on the north and east aspects should not be delayed, if the weather prove fine. Espaliers, where repairs are necessary, should now be attended to, and the trees pruned and neatly tied with rope yarn. Raspberry plantations also might be staked, tied, and pruned, according to the strength of the canes. A large amount of manure applied to the surface will prove of great advantage to them in the bearing season. Cross [ill]-directed branches which prevent a free circulation of air or [sun] the bearing season should be removed, and newly-planted during [sh]ould be carefully staked to prevent friction when tied. trees sh[ould] ss require stimulating, a good dressing of half-de-If any tre[es] eayed dung should be spread over the surface as far as the operator considers the roots extend.

FLOWER GARDEN.

As the weather is unusually mild, arrears of autumn business can now be made up, and even a march stolen on the coming spring. In the flower garden little can, however, be done now except digging the borders and beds deeply to ameliorate the soil for clumping-out flowers. Any of these beds that are exhausted should have the soil renewed ready for spring work. In open weather laying turf may be proceeded with. See that all hardy plants are secured against severe weather. All Pink and Pansy beds must be looked after; those plants that are loosened in any way should be carefully fastened. The same observations will apply to seedling Auriculas and Polyanthuses. Carnations and Picotees will still also require regular attention, as they are said to be spindling in this mild weather. It will be better to allow the stem to remain on till later in the spring, watering occasionally when the soil is very dry, but avoid wetting the foliage as much as possible. Where turf is at all uneven it should be repaired before the end of next month, as, if lifted later than February, it might require some trouble to get it to take quickly. Unlevel turf is an eyesore, and it makes mowing more tedious and difficult; hence it is worth while to spare time to make whatever little repairs may be necessary here. Sweep lawns occasionally to clear them of fallen bits of branches, &c., and use the roller frequently here and on gravel to secure a firm, smooth surface.

GREENHOUSE AND CONSERVATORY.

During the present changeable weather the principal object should be to keep damp and mildew in check, which the weather we are now experiencing is likely to induce. Nothing keeps off these two evils so much as a dry, healthy atmosphere. To assist in promoting a free circulation of air through plant houses, some of the inferior duplicates might now be removed to spare vineries or other quarters, for the slightest approach to a crowded state among delicate plants will be sure to cause at least a partial loss of foliage. Let all descriptions of hard-wooded plants that have made sufficient growth, be kept rather dry at the root, in order to check their growth and induce a tendency to form bloom, but do not let the balls become so dry as to endanger the foliage. Look sharply after insects especially mealy bug, and endeavour to get the whole collection clear of this destructive pest, for if neglected now it will not fail to demand attention in spring and summer, when time with the plant-grower will, doubtless, be fully as precious. A temperature of from 40° to 45° at night, and from 50° to 55° during the daytime in the conservatory, is during this dead time of the year amply sufficient. Where twiners for covering the roof are grown in boxes or have but limited root room, as much of the surface soil as can be taken away without seriously injuring the roots should be removed annually, replacing it with some good rich fresh material; this cannot be done at a better season than the present. The conservatory or show house should very soon be full of floral beauty. Camellias, Luculias, Epacrises, Heaths, Primulas, Mignonette, tree Violets, Cinerarias, Indian Daphnes, and many other showy things, may easily be had in flower at this time, and with proper appliances a few Roses, and other forced plants, as Oranges, bulbs, &c., should be made to come in now. Let Pelargoniums now be kept as much at rest as possible, giving them but little water; in fact, none unless the leaves show a disposition to flag. In fine weather like the present they should, however, have plenty of air, but not in the shape of cold currents, which are apt to prove injurious to the leaves. A temperature of 50° by day, and 40° by night, will be sufficient for the present. Any of the stock from which many cuttings are wanted should, without loss of time, be removed to a light, warm situation, first washing the pots, and cleaning and adding a little fresh soil to the surface of the ball. Some kinds of Verbenas are very subject to mildew when placed in heat during the winter season, but this is easily kept in check by means of sulphur, only let it be applied the moment the pest makes its appearance.

FORCING PIT.

The pit in which flowers for the conservatory are forced, should possess at this period a permanent bottom heat of 80° with atmospheric moisture. Such being the case, preparations must be made for securing a due succession of early spring flowers, a sprinkling of the most favourite kinds of which may be forthwith introduced, such as Moss Roses and crimson

Perpetual Roses, hardy Azaleas, and plants of that sort. Hybrid Perpetual Roses will do better in a more moderate temperature.—W. Keane.

DOINGS OF THE LAST WEEK.

KITCHEN GARDEN.

The common and Veitch's Cauliflower were protected during the frost with litter, which was left banked-up against them even in fine weather. On looking over these we came upon half-a-dozen so hurt as to be useless, and also numbers with heads of from 2 to 4 inches in diameter, swelling well, and as white as milk, all of which would have been injured if no protection had been given. Mice and rats seldom meddle with plants put out in the open garden, but should these be placed under cover, they are at them immediately.

FORCED VEGETABLES.

Lately I have not been able to force *Dwarf Kidney Beans* in winter, but I would recommend them as being more tender than those grown in the open air, as making a pleasing variety on the dinner-table, and realising a handsome profit in the market. Our first out-of-door crop was planted out from pots in May, and the last sowed at the beginning of July in an earth-pit, to be protected in October, and gathered in the middle of November. Our first crop, under glass, we sowed in pots outside during September, and brought into a heated position about the middle of October. If it is necessary to grow them in pots afterwards, sow four or five Beans in 60-pots, and then transplant them to 6 or 7-inch pots, in which they bear heavily. After the middle of January we used 12 and 15-inch pots, but the largest produce in the darkest months of winter was always from smaller ones.

We had more produce from pots than from pits during the dark months, but from February and onwards that from plants in a pit was larger than that from those in pots occupying a similar position, though if the latter were well top-dressed there was but little difference between them. Those planted out, however, were on the whole better. A heated pit is preferable to a forcing house, as thrips and red spider are thus avoided. When thus grown in pits we used to have strong plants in 6-inch pots, which we planted thickly in rows from 2 feet apart. We often kept up successions by sowing in the furrows between, shortly after those in the rows had begun to bear. With a little fresh soil we have thus often had four and five successions in the same pit. When this plan is not adopted it is best to sow in 5-inch pots, and then plant them out as a piece of the old crop is cleared. An application of lime and sulphur upon the walls, pipes, and flues, with a plentiful syringing of warm soot-water on sunny days, are the best preventives against red spider and thrips. Newington Wonder, Sion House, and Robin's Egg were our favourite kinds. Sir Joseph Paxton, if obtained true, is a dwarf free-bearing kind. Kept-up successions of Sea-kale, Rhubarb, Asparagus, and Mushrooms. Rhubarb may easily be forwarded by means of a barrel set over the roots, or by half a dozen sticks put round a strong root and wrapped with a strawband, then light litter placed under, and a firm bunch of it stuck in the opening at the top. The finest and sweetest *Sea-kale* we ever had was obtained by covering the roots with 6 inches of bog earth, and placing a foot of fermenting material all round, and on the shoots appearing the crop was gathered. The next best obtained out of doors was by covering the ground above the roots with dry ashes and a little salt to deter slugs, and then laying over from 12 to 15 inches of clean sweet tree leaves, with a slight sprinkling of litter. When a little protuberance appears on the covering you may be sure that the shoots are from 6 to 7 inches in length, and will come through the leaves white and sweet; but on this plan no dung must be mixed with the leaves. In all cases where this is necessary the roots, or rather buds, should be covered with pots or boxes to keep the shoots clean and sweet. Direct contact with slightly warm leaves will not tell on the sweetness of the flavour, but we have always thought that direct contact with strong manure took away from the sweetness of the shoots. We generally grow all our earliest in the Mushroom-house, but we do not obtain such strong stubby heads as we do later on by the above simple means out of doors. The heads of Sea-kale should be stubby and branched, not more than 6 inches in length, from 1 to 2 inches in diameter at the base, and quite white with the exception of a tinge of purple at the points.

I think that last year I showed in some place the importance of using Sea-kale as an early out-door vegetable without any covering or blanching whatever. Previously, I had directed attention to the use of the flowers before they were too much expanded; but even these are inferior to the fine short shoots that come in spring and early summer, just showing the flower-umbel in miniature. If these are cut when short, and cooked, they supply an abundance of rich food, and there is quite time enough to put out new shoots to keep the plants well established. Even thus treated, without forcing and blanching in winter, the Sea-kale is as worthy of a place in every cottage garden as Cabbages and Brussels Sprouts.

Where vegetables are at all scarce, allow me again to recommend placing a score or two of Swedish Turnips with their tops uncut in any dark place, with a temperature from 50° to 60°. The tops, if cut when 6 to 7 inches long, make a delicious yellowish dish, which many prefer to Sea-kale. The blanching takes away much of the natural acridity of the Turnip top, leaving just enough to make it agreeable.

FRUIT DEPARTMENT.

Looked over our fruit room, which is new and a little damp. Pears have not kept so well as Apples. We have open slatted or railed shelves, the slats 3 inches wide, with three-quarters of an inch between them, and a boarded floor.

Grapes.—Picked a few berries from late Grapes, which showed no signs of damping, until we were obliged to place a lot of plants on the stages. Set the first division of vinery in action, and placed shrubs and scarlet Geraniums showing bloom for cutting on the stage, and bulbs coming on in front. Began to use the Peach house, the floor of which is as yet filled with Geraniums in boxes, filling the shelves from a pit with Strawberries in pots, each plant having about 1½ inch square of space, until they are thinned. Put more Strawberries where they would have enough bottom heat to bring them on gently, but not to entice the roots downwards. A small wedge not much larger than an ordinary tally, inserted between the sash and the rafter, will keep sashes safe in windy weather.

ORNAMENTAL DEPARTMENT.

Our chief work has been

Moving and replanting large trees, though the weather was anything but suitable for the work. The trees had received no previous preparation, and therefore required much root-tracing. I would tell those contemplating such work that unless provided with very efficient machinery, the moving of fine trees with boles ranging from 12 to 15 and 18 inches in diameter will but rarely be very satisfactory, as for several years they merely exist before beginning to grow freely again. With younger trees, the diameter of whose bole ranges from 4 to 8 inches, the work is comparatively light, and after the first year the trees will soon get over the check and grow away freely. Without previous preparation much of the success will depend on the careful tracing of the roots and the packing of them well. The soil is just rather wet for packing, and it is as well in such changeable weather not to have the holes made long before they are wanted.

Damp in Cold Pits and Frames.—We gave air freely at the top and bottom of pits and frames which contained Geraniums, to keep the plants from damping, but we would like better to have them in a little fire heat if that were possible. Many thanks to Mr. Peach for his excellent article and plan of house at page 16. It will confirm what we have all along stated as to the superiority of a little house, however heated, over a pit into which you cannot gain admission. Taking the comfort into consideration, the little extra expense for fuel in comparison with the covering necessary for pits and frames will be as nothing. The looseness of the grooves will contribute greatly to the safety of the glass when put closely edge to edge. When put closely edge to edge and held firm at the sides, there is risk of breakage from expansion.

Watering.—All pot plants, especially in low temperatures, must be watered with judgment, but bulbs throwing-up their flower-stalks will want a good supply. Primulas, Cinerarias, and Calceolarias must not be kept dry. These, all softwooded plants in general, and hardwooded plants in particular, should never have any water poured close to or against the stem, especially in such close wet weather. Thousands of promising Chinese Primroses, and also Cyclamens, are damped and rotted-off by allowing the collar or stem always to be wet. In watering it is best to sail the top of the pot by pouring the water on a crock or shell close to the side of the pot. It is easy to hold the pot in one hand and a large crock in the

other. Air in a mixed house should be most freely given opposite the hardiest and most backward blooming plants. In a mixed house, therefore, it is well to place the plants in groups, which will require similar attention. Potting has chiefly been confined to Pelargoniums, Ferns, Gloxinias, and picking-out some Achimenes and Gesneras to come in early. Placed some Azaleas where they would be forced gently into bloom. Shrubs taken up and potted for forcing, will be much helped if the pots are plunged in the open air in a mild hotbed, so as to root afresh before the heads receive much heat.—R. F.

TRADE CATALOGUES RECEIVED.

Downie, Laird, & Laing, 17, South Frederick Street, Edinburgh, and Stanstead Park, Forest Hill, London, S.E.—*Descriptive Catalogue of Garden, Flower, and Agricultural Seeds, &c.*

Charles Turner, Royal Nurseries, Slough.—*Catalogue of Seeds for the Kitchen Garden, Flower Garden, and Farm.*

E. P. Dixon, 57, Queen Street, Hull.—*Catalogue of Seeds for the Farm and Garden.*

Dick Radclyffe & Co., 129, High Holborn, London, W.C.—*Spring Catalogue of Vegetable, Agricultural, and Flower Seeds, &c.*

Butler & McCulloch, Covent Garden Market, London, W.C.—*Spring Catalogue of Seeds for the Kitchen Garden and Flower Garden, &c.*

TO CORRESPONDENTS.

*** We request that no one will write privately to any of the correspondents of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely to The Editors of the Journal of Horticulture, &c.*, 171, *Fleet Street, London, E.C.*

We also request that correspondents will not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, if they expect to get them answered promptly and conveniently, but write them on separate communications. Also never to send more than two or three questions at once.

Seedling Gloxinias (*T. C. Brigg*).—They are very good. You had better send specimens to the Floral Committee of the Royal Horticultural Society. It will meet on the 17th.

Grapes Shanked (*H. G., Chichester*).—The bunch sent is totally shanked, and it is evident from your query that the shanking arises from a deficient supply of sap, and that deficiency is caused by the inside border being kept dry. When the Vines are about to be started, thoroughly soak the border with tepid very weak liquid manure, mulch the surface, and water moderately once a-week during the season of growth. Treat the Peach border similarly.

Select Fruits (*J. L.*).—These will all "come in one after the other." *Twelve Pears.*—Citron des Carmes, Jargonelle, Beurré d'Amanlis, Louise Bonne of Jersey, Seckle, Van Mons Léon Leclerc, Doyenné du Comice, Beurré Bosc, Forelle, Winter Nelis, Glou Morçeau, Bergamotte Esperen. *Twelve Apples for Dessert.*—Early Harvest, Devonshire Quarrenden, Kerry Pippin, Fearn's Pippin, Yellow Ingestrie, Golden Winter Pearmain, Cox's Orange Pippin, Golden Reinette, Adams's Pearmain, Cockle Pippin, Mannington's Pearmain, Sturmer Pippin. *Twelve Kitchen Apples.*—Keswick Codlin, Stirling Castle, Lord Suffield, Cox's Pomona, Cellini, Bedfordshire Foundling, Emperor Alexander, Mère de Ménage, Warner's King, Yorkshire Greening, Alfriston, Norfolk Beefing. *Twelve Peaches.*—Early Rivers, Early Beatrice, Early Grosse Mignonne, Dr. Hogg, Early York, Grosse Mignonne, Royal George, Noblesse, Bellegarde, Barrington, Walburton Admirable, Lord Palmerston.

Bidens atropurpurea (*Goodness*).—Botanists have no plant so named, but some nurserymen call Cosmos diversifolius *var.* atrosanguineus by that name. It is not a glaring blunder, for Bidens, Coreopsis, and Cosmos are allies. Coreopsis coronata is a native of Texas, whence it was sent by Mr. Drummond the Royal Horticultural Society's collector, in 1835. Its specific name, coronata, refers to the circle of crimson splashes on the petals, which have the appearance of a coronet.

Labelling (*J. J.*).—It is not usual to prefix the name of the kind of fruit Brushing the bark with a strong brine made by dissolving common salt in water will remove the green moss.

Where to Move to (*A Berkshireman*).—The query related exclusively to a gardener's employment. But we cannot aid you. Anywhere within forty miles of London and near a railway station would suit your purpose.

Defective Flue-heating.—"I cannot yet understand how to make my flue fire burn for any length of time. I suspect that mine is radically wrong. The flue runs the length of the house, and returns to the same spot for the chimney. The fireplace is outside the house, and has nothing to separate it from the flue, so that the fuel could be driven the whole length of the house if one thought proper. Then they talk of the ashpit doors. The fuel rests upon bars, with nothing underneath them, entirely open to the air. As it is, the fire rages furiously when the door is open, and lasts for a few hours. If the door be left open the fire goes out."—H. L. W."

[There is no doubt that your furnace for the flue is wrongly constructed. All you have to do is to lower the furnace, so that the fires may be from 18 to 24 inches below the level of the bottom of the flue. Have an ashpit, say at least a foot in depth, beneath the bars, and have a close-fitting door to it, with a ventilator in it. Leave the ashpit door open until the fire is established, and then keep the furnace door shut, and allow just as much air at the ashpit door as will support slow combustion. Of course until you get the heat up, a good deal of air must be left on the ashpit door. When the heat is up a slow combustion will be sufficient, and that must be regulated from the ashpit door.]

Fenn's Onward Potato (*Potato-fancier*).—It requires generous cultivation and is especially suitable for garden ground. Apply to the Messrs. Veitch, Royal Exotic Nursery, King's Road, Chelsea, S.W.

Plants not Thriving in Conservatory (*Beechwood*).—We can only account for the plants doing so indifferently, from the house not being adapted, for flowering plants in winter. We do not wonder at the Camellias casting their buds, Chrysanthemums half expanded when put in never fully opening, and Cineraria flower-buds blind. The house is glazed with thick frosted glass, than which nothing looks so pretty, and than which nothing is more unsuitable for flowering, nor, indeed, any kind of plants in winter, and in summer only suitable for flowerless plants, or those requiring shade. Rough plate, or that ground on one side, is sufficient to diffuse the sun's rays; frosted glass prevents the passage of light to too great an extent. The fault we should say is in the gas-pipe, from which we think there must be an escape. The water you allude to will not injure the plants; at least our supply is from iron pipes.

Croton pictum and variegatum Losing their Leaves (*An Inquirer*).—The cause of leaves falling from the young growths is the imperfect ripening of the wood, due to a deficiency of heat and light; and considering the amount of light and heat the plants have been exposed to, we think they have been too copiously watered. Crotons require an abundance of light and no shade in summer in order to colour well. Keep them dry from the present time up to March, not allowing the leaves to fall from want of water, and then you may cut them back if straggling, keeping them rather dry in a bottom heat of from 75° to 80°, and not potting until the plant has broken, then repot. Keep Allamanda nobilis dry, and cut back to firm wood in February, repotting after it begins to grow.

Placing Hyacinths in Heat (*An Old Subscriber*).—The Hyacinths which you have had out of doors, covered two months with coal ashes, we should remove at once, and place near the glass in a house with a temperature of from 40° to 45° at night, and 45° to 50° by day from fire heat. A stove with a temperature between 65° and 70° would bring them forward too rapidly, but on a shelf near the glass they would not be so liable to become drawn, and might flower fairly, but we believe they would only do moderately well. They would flower much better without heat if the roots were merely protected from frost. Syringing with very hot water will not kill thrips, and if warmer than 140° it will injure the Azaleas. Syringe them with tobacco water, made by pouring half a gallon of boiling water on an ounce of the strongest shag tobacco. Cover over closely, let the liquid stand until cool, then strain, and syringe the plants on the under sides of the leaves. Instead of using this you may dilute the tobacco water of the shops with six times its volume of water, and syringe the plants.

Callas not Flowering (*Paganini*).—We are not surprised at the plants not meeting your wishes, for you expect too much. They will not flower again until from March to May, and we should now keep them rather dry, not allow the foliage to suffer, and place them in a temperature of not more than 45° to 50° for six weeks; then encourage them with plenty of water, and a temperature of from 50° to 55°, and we think you will have as fine a spring as you appear to have had an autumn bloom.

Uses of Small Frames (*C. L. D.*).—Your frames 3 feet wide, 2 feet 6 inches high at back, and 1 foot 6 inches in front, with glass tops, fronts, and ends, the backs and bottoms of wood, will be useful for many purposes; but we do not see any necessity for a glass front or glass end. Wood would be better, as it is not so liable to be damaged as glass, and there is no necessity for a bottom of any kind. Such a frame would be useful for placing over a gentle hotbed intended for raising half-hardy annuals as Ten-week Stocks and Asters, for hardening-off bedding plants previous to planting-out, for placing over Lettuce or Cauliflower plants in winter, or for anything needing protection; and in summer you might grow Cucumbers or Melons on a gentle hotbed, putting out a plant at every 6 feet of length. Achapesnorrischer Melon is a good sort, to be sown in a hotbed, planted out on a little bottom heat, and to be covered with glass at least up to July. In every respect it requires the treatment of ridge Cucumbers and is the better of glass, which may be raised so as to allow the Vines to come under it, elevating the frame or glass at the corners, which will protect or throw off heavy rains from the collar of the plants. They are impatient of wet on their stems. The flavour is good.

Evergreens under Lime Trees (*Inquirer*).—As the Lime trees are so very close together, we fear the ground will be so matted with roots as to prevent any undergrowth. The Lesser Periwinkle (Vinca minor) would give a close green covering, and the common Ivy (Hedera Helix) will grow where scarcely anything else will. Common Laurel pegged down might answer, and the Aucuba will grow where Laurels fail. Butchers' Broom and Spurge Laurel are also good.

Period of Resting Vines (*J. H. Jones*).—From the time the leaves fall until the Vines start into growth, two months should be allowed. Prune as soon as the leaves are off. They are the better of three months' rest.

Muscadine Grapes not Ripening—Applying Salt (*H. Foy*).—The most likely cause of the fruit not ripening is the shade of the Black Hamburgh; it is useless to try to grow Vines under Vines. Give them equal advantages, and the Muscadine will ripen its fruit as well as the Hamburgh. Twelve bunches are too many for a Vine just commencing bearing. Ten bushels of salt per acre will be a sufficient dressing. This will be exactly two quarts per rod. It will be of no use now, except to save the plants from frost, and we do not advise it to be applied until March.

Tar on Hot-water Pipes (*A Constant Reader*).—If your hot-water pipes are painted with tar, your only remedy is to take them out, make up a fire of brushwood, and burn the tar off. The scum on the rain-water tank is undoubtedly owing to the gas tar. No plant will thrive in the house as long as the tar remains on the heated pipes. If the pipes have been coated with a mixture of tar or varnish and oil paint, you may dip cloths in a solution of soft soap, 8 ozs. to the gallon, and wrap them round the pipes for forty-eight hours, keeping them saturated with the solution, and the paint may peel off; but we think your only remedy will be burning it off.

Erratum.—At page 16, sixth line from the end of "Experto Crede's" remarks on the Gladiolus, for "improved" read *unproved new.*

Over-luxuriant Reine Hortense Cherry (*E. P.*).—As your tree blossoms freely it would do it no good to lift it. Keep the tree nailed to the wall in the usual manner, do all the training and thinning of the young shoots in summer, and destroy aphides by frequent syringing. Reine Hortense is a shy bearer. If it will not succeed with you, others of the Duke class will,

such as May Duke or Archduke. In the Bigarreau and Heart class the two following are always to be depended upon—Black Tartarian and Elton.

Asparagus Bed Making (*An Amateur Gardener*).—The plants you have saved will not be suitable for a new bed, but you may force them, directions for which were given by Mr. Record a few weeks ago in this Journal. The ground where you intend to make the bed should be trenched not less than 3 feet deep, if it will admit of that, and a 3-inch layer of dung placed between every layer of soil. If the soil be heavy put in plenty of sand, and before turning on the next layer mix up the manure and sand with the soil. In this way proceed to the bottom of the soil, taking care not to bring up more than a few inches of subsoil. The earlier this is done the better, so as to let it have frost. For a single bed a width of 7 feet should be trenched to admit of 4 feet for bed and 18-inch alley on each side. In March place on a 3 to 6-inch coating of well-decayed manure, with an inch of sharp sand—sea sand if possible—and fork the ground over twice to mix the dung and sand thoroughly with the surface soil. Leave it until the early part of April, and then put in three rows of plants—two outside ones 9 inches from the sides of the bed, and one row in the centre. Take out a trench as in planting Box edgings, lay the roots against the side 1 foot apart, with their crowns level with the surface, and fill up the trench neatly. When all are planted cover up 1 to 1½ inch deep with soil from the alleys. The plants should not be older than two years, but we prefer one-year-old plants. After May water as much as you like up to September, and as often as you can with liquid manure.

Habrothamnus elegans (*Idem*).—It is a greenhouse plant, and would not succeed as a climber against a west wall in an eastern county. It is a native of Mexico.

Cucumber Culture (*M. H. B. L.*).—You must at least have a house with a temperature of from 50° to 55° at six o'clock in the morning, and capable of being raised to 10° or 15° more during the daytime, to succeed in growing Cucumbers in winter. A night temperature, ranging from 65° to 70°, with an increase usually of from 5° to 10° in the day, but from 15° to 20° in bright weather, is also essential. You may, however, begin to raise the daily temperature, by means of a hotbed, as early as the beginning of March, if you feel so inclined. Telegraph, Long Gun, and Blue Gown are all good Cucumbers, but we would select more particularly the first of these, Cox's Volunteer, Marquis of Lorne, and Master's Prolific, an early sort.

Starting Vines in Pots (*Idem*).—Weak Vines raised from eyes last year, and cut back to the second eye, should be placed in a heat of 50° to 65°, and left there until June, when they may be removed to the cool vinery.

Camellias Casting Buds (*Idem*).—Let the plants remain in the house with a temperature of about 45° until the growth is complete and the buds set; then remove them to a cool house. If they, as we think, need potting, the roots being evidently in an unhealthy state, do it at the early part of March. (*E. M. M.*).—We do not attribute this to be due to the change of temperature in consequence of the existence of a few broken squares, but rather to the condition of the roots. The small insects are most likely mites, and are often plentiful in a soil containing an excess of decaying vegetable matter. Repot the plants immediately after flowering or early in March, carefully picking out as much of the old soil as comes away freely, so as not to injure the roots, and pot them firmly in a compost consisting of the top inch of a pasture of a light sandy loam, chopped up small. Keep the point where the root and stem join level with the rim of the pot, and drain them well.

Pine Apple Culture (*H. O.*).—The plants potted last September in 12-inch pots we would not shift into larger ones now, but as the pots are filled with roots you may remove a few of the lower leaves, top-dress them with rich compost, and place them in the Cucumber house. Here they must have light and not be far from the glass. If you can afford bottom heat all the better. The temperature will be suitable.

Vine Culture (*T. H. T.*).—The Vines that have been plunged for a year we should lift carefully, taking up all the roots that have extended beyond the pots, and then by breaking the pots disentangle the roots, and lay them out in planting. You may do this when they have begun to grow, to the extent of an inch or two. To have Grapes early in July the Vines should be started in the second week in January. A great deal depends, however, on the kinds. Muscats will be three weeks or a month later than Hamburghs. Grapes will do well in a heated vinery. The wires in an orchard house, or against any wall, should be more than three-quarters of an inch from it; better if so close as only to admit of the string for tying the shoots. You would do well to dig round the Oak in March, which you contemplate moving in November.

Soil for Rhododendrons (*T. T.*).—To your deep black soil, which we think would grow Rhododendrons well with admixture, you may add in place of peat as much sandy turf as you like, leaf soil, and sand, two-thirds of the former, one-third of the second, and a sixth of the latter. This is a capital soil for them, and a fourth part of old cow dung or well-rotted hotbed manure might be added with advantage.

Material for Protecting Fruit Trees (*Black Edge*).—Of the materials you name for protecting fruit-tree blossom from frost, we prefer tiffany. The protection is not a needless expense, but very often results in securing a crop By all means use the protection you describe, taking care to keep it from brushing against the blossoms, and making safe from wind. Put it on when the blossoms are expanding, and remove it in all mild weather, using it only in frosty weather. 2. The Scarlet and Pink Thorns attacked with blight and caterpillars will not communicate the pests to other trees, but you should syringe them just before coming into flower, and again afterwards, with a solution of soft soap, 2 ozs. to the gallon. 3. We do not know of anything that, sprinkled around shrubs, will keep dogs from them, and we think your only remedy is to enclose with wire netting. 4. By having boxes made as you propose, draining them well, and filling them with soil, you would succeed in growing climbers against your house. If you had a width 2 or 3 feet there would be no necessity for changing the soil every year, but merely to remove the surface soil, and top-dress with rich soil. The main difficulty would be in keeping the frost from the roots in winter, but that difficulty you will, no doubt, overcome.

Larkfield Rival Pelargonium, &c. (*A Reader*).—The plants you mention can be obtained of any of the chief florists and seedsmen who advertise in our columns.

Names of Plants (*Alban Goodman*).—Myrsiphyllum asparagoides, native of South Africa, and a plant we hold in high favour. (*W. B.*).—1, Sida myosorensis, a generally-distributed weed in the western peninsula of India; 2, Polystichum Richardsii; 3, Very young, in all probability a Diplazium, most likely to be *D. japonicum*.

POULTRY, BEE, AND PIGEON CHRONICLE.

BRISTOL POULTRY SHOW.

In spite of the prohibitory subscription, the Bristol Show this year just exceeded one thousand entries; but it is worthy of remark that the number of exhibitors fell off materially, so that the amount gained was by no means what had been anticipated. As usual the birds were shown in single tier, which gives this Show a great advantage over even the Crystal Palace as regards seeing and judging the birds. We regret to say that again bad weather interfered with the attendance, and it is only fair to state, in reply to some of the glowing calculations which have been made, that the receipts at the doors are always considerably under £100. Last year they were about £70, and it is this unaccountable apathy of the general public which causes the Committee such embarrassment.

Dorkings.—Cockerels were rather poor on the whole, and we regret to say that in our opinion the first-prize was a case of deception, being an old bird; and we believe this was the judgment of all present. We can only say the spurs were perfectly hard and perfectly sharp, and there was an amount of white rarely seen in a chicken's tail. The head also showed evidence of age. Pullets were a fair average, but there were no birds of marked excellence save the first-prize pen. The second-prize pen contained a "very early" chicken. Cocks and hens were better classes, and the first-prize cock an enormous bird, which fairly beat Mr. Martin's Rose-comb. The hens formed the best Dorking class seen this season, and we are not sure we should not call the cup pair the best pen in the Show. Nearly every pen in this class was mentioned. Silver-Greys were very poor, the first prize in cocks being withheld, and no commendations given in either class. White cocks were good in shape, but all very yellow; the hens, on the contrary, were very fine though few, and the winning pen was unusually so.

Cochins.—There was some difference of judgment about the first and second-prize Buff cockerels, the second being the Palace cup-winner, which has left the Stoke Park yard. It was a nice point, and we believe the Judges were in some doubt. The first bird was rather the best in feet, wings, and perhaps colour generally; the second in size and shape, but decidedly gone off in condition, and he ought not to have been shown. Third came a good bird too. When we say only four others were named it will be seen the class was not of startling excellence. In pullets, we thought the first-prize a mistake, and that the second should have held that position, giving the second to the cup Palace pair, which were nearly as good as ever, though now only highly commended. Among the old cocks were several rare birds, but nearly all were somewhat rough, which certainly threw out the cup-winner of last year; this bird has grown to such an enormous size that at our request he was weighed by one of the officials of the Show—he scaled 2 ozs. short of 15 lbs. Of hens we liked Mr. Taylor's second-prize pen better than his first, but all three were rather evenly matched. Partridges disappoint us more and more; the decadence is not confined to one breeder but is general, nearly all the cocks getting clumsy and round-backed. They were out of condition, which injures a bird's carriage; but we did not see a really first-rate bird in the class. Pullets and hens were better, perhaps, but far from what they used to be. White cockerels were better in colour than usual; the pullets also a nice lot, and owing to the late date more developed than at other shows. The first-prize pair were really beautiful, the old cocks yellow, as usual, the only White bird being the commmended, 212. In hens, the cup pair had one grand bird, and another very fine. Mr. Sichel's birds lost for want of a washing. Except in the colour of the cocks, it struck us Whites are improving.

Brahmas.—Cockerels were the finest collection in point of quality ever brought together. The Palace cup-winner was again to the front, and though recklessly overshown, had really improved since Edinburgh Show. Second came a very fine bird in shape and colour, but with heavy hocks. The third-prize bird was of good colour, but had no other redeeming point, and this award should have been given to the highly commended pen 242. In this class an unusually conspicuous case of plucking was properly visited by the Judges and Committee with disqualification and publication in the catalogue. Pullets also were a grand class, the Palace pen, fourth at Birmingham, being again to the front. Their fine marking was as good as ever; but the wings of both birds being displaced or "slipped" as it is termed (as they were also at the two previous shows), should, we considered, have thrown them out altogether, giving the third prize, vacant by promotion, to Mr. Arkwright's pen 238. The second prize went to the Birmingham winners.

In old cocks, Mr. Taylor's bird, which was first at Birmingham and degraded at Manchester through overshowing, was here out altogether, having quite gone off his legs. Very possibly he is ruined, and we would suggest to the Judges that they might with

benefit meet this growing evil by refusing to award prizes nearer the commencement of the poor bird's sufferings. The cup bird was fine in nearly all points; the second we did not like much; the third-prize bird very fine in head, shape, and plumage, but too long and rather white in the tail. Among the hens were several good pairs, the second perhaps the best. In Lights the cup bird was fine in shape and size, but had a badly slipped wing. Second, medium shape and size, but no colour; third rather small, but best of the three in our judgment; we considered pen 311 to be the best in the class, being beautifully marked, of fair size, and nearly perfect shape: he was not noticed, so much do people differ. Pullets were poor as usual, the cup pen clean, but bare of feather, and pen 362 must have won, as we believe they have before, but were in filthy condition. Cup cock, fine shape and size, but again no colour. Second better, and with more leg feather he must have won. The winning hens were the usual pair, which have changed hands.

Spanish were the best classes of the whole season. The cup cockerel was a beautiful bird, in first-rate condition; the third-prize bird had a fine face and comb, but a slight redundancy of earlobe, still we think he ought to have been second. The pullets were well placed, and the cup pair were the gems of the year; in fact, the whole class was the best of the Spanish collection, and a treat after the mediocre lot seen at previous shows. The first-prize cock was very fine, but we fear has joined the early-closing movement. Hens were poor, except the first two pens. The whole season seems to have been strangely against this breed.

French Fowls.—The cup cock was a grand Crêve-Cœur, and second another worthy his place, but the third was a very poor Houdan, entered by an experienced exhibitor at four guineas, and up to Friday night at least not claimed. In this class a pair of hens were sent in mistake by such a veteran exhibitor as Mr. Fowler, and were necessarily disqualified. In hens, the first and third were fine Crêve-Cœurs, the second rather middling Houdans.

Hamburghs.—The cup Gold-spangled cock was a fine old bird. The second prize went to a bird hardly matured, but in the best condition of any in the class; the third, on the contrary, was not in good feather, a circumstance which lost him at least one place. The hens were a poor class, few of the birds being good, and good matches were conspicuous by their absence, most of the prize pens having one good bird to one bad. In Silver-spangled the winning cock was very fine; none of the others perfect in the bars. The cup hens were a first-rate pair, except that one had rather a shady tail. The second-prize hens were also good; the others below par. In the next division both cups went to the Golden-pencilled, and the whole cock class was very good. The first-prize hens were a beautiful pair; those second were not perfect in tail, but superior in body markings to the third. These two classes were perhaps the best of the Hamburghs. Silvers were not so good by far, with the exception of the winning pen in each class. In Blacks Mr. Serjeantson won easily; the condition in which he shows his birds is wonderful. Throughout this group of classes the effect of the December shows was plainly seen in a fearful loss of condition compared with what many of the very same birds had exhibited previously.

Game.—In the Game classes this remark will apply even more. Many really good birds had gone quite "soft" with the repeated confinement and course of soft food they had had, and the awards were evidently chiefly guided by the handling. Black Reds were both large and good classes; and, as usual where there are so many experienced breeders, it was easier to find fault than to pick out winners, but the prizes all went to good birds. Brown Red cocks were few, two out of eight entries not being sent. This made it easy to select the pens, the few other good birds having sadly gone back. In hens no pens beyond the three were mentioned. Duckwings were also small and poor classes. The winning cock was a fine bird, but too dark in colour. The next class contained only three Pile cocks, which shared the list between them; and in hens only one bird put in an appearance, which, being a very good one, was awarded the first prize "to encourage the rest." On the whole, perhaps, the Game were the most unsatisfactory classes in the Exhibition.

Polish.—In the cock class every pen but one was highly commended, Silvers being first and third, and Gold second. In hens Mr. Adkins was first again, and a pair of Golds third. No Blacks were shown, the first time, we think, this has ever occurred at a Bristol Show.

Malays.—These were the best entries of the year, eleven cocks and sixteen hens being entered. Cocks were a fine class, Mr. Brooke being beaten at last by a young cockerel, which was at once claimed at two guineas and a half. Hens, on the contrary, were poor in quality, or rather in condition, though more numerous. Several of them showed that the owners did not know what a Malay is, being quite destitute of that peculiar shape which enables a fancier to know one even in the dark. Mr. Hollis won again, and fairly in our opinion. Some thought Mr. Brooke's bird best, but she was not in good order by any means, and the rev. gentleman's really best bird was in worse, and only highly commended.

Any Variety.—Here we were puzzled by the judging. In cocks, the first prize went to a Silky, stated by the Judges to be the best they remembered, yet absolutely destitute of feather on the legs, and much too long in the tail in our opinion. Second was a Pekin Bantam, and third a really miserable so-called Black Cochin, almost bare-legged, and exactly the shape of a leggy Brahma. A very poor Leghorn, with very short and nearly white legs, was highly commended; while a young cockerel, the finest yet sent to England, and perfect in every point, having been selected by the Treasurer of the New York Poultry Society as a standard bird for portraiture, was unnoticed. This and the following class were remarkable for two pens, stated by Mr. Moor to be a "variety of Brahma," and put in at a high figure. The colour of the pullets was a bluish pale grey or drab, rather sickly to our taste; but we heard an old lady remark she had never seen "such lovely-coloured fowls," and possibly if bred to a decent shape they might be popular. In hens, first came unusually good White Minorcas; second, the best pair of Sultans we have yet seen; and third, rather poor Black Cochins. A really good strain of the latter variety would carry all before it, but in our opinion not a single pen in either class of this variety was pure bred.

Ducks.—Aylesburies were only four entries, but all good. In Rouens a pair that would not disgrace Birmingham were first. The second-prize drake was nearly as good, but the Duck was by no means equal. The Black East Indians had a class to themselves. There were several good pairs, but Mr. Sainsbury's winners were worth the lot, both for smallness, colour, and style generally; in fact, they have never appeared in equal condition to what they here showed. The "Any variety" class contained two pairs of the Black Cayuga, new to this country, and very erroneously stated by one of the Judges to be similar to the Black Ducks so common in Lancashire. It surpasses any other large Duck in flavour, requires very little water, and has the gift of getting and keeping fat on much less food than any other Duck of its size. None of these are shared by the Lancashire breed. First and third were Mandarins and Carolinas, as usual; the third being deservedly given to a very remarkable pair of Whistling Ducks, which drew much attention by their peculiar notes. Both sexes are similar in plumage. The sides of the breast are beautifully pencilled, something like a Grouse in colour, but quite straight across the feather; back and wings something like the Rouen female, but very dull-marked; head white to one-fifth of an inch behind the eye, where the white ends in a straight perpendicular line; bill black, breast claret, and carriage like a Woodcock. The Cayugas were only commended.

Geese only showed five pens for six prizes. In the "Any variety" class, besides Embden and Toulouse, the first prize went to a fine pair of Chinese, which were firmly believed to be Swans by many of the ladies present.

Turkeys.—These were the finest ever seen at Bristol, the winning pair being fit to compete anywhere. This class contained a magnificent pure wild American cock, also sent over by Mr. Simpson, but which was unfortunately out of competition through having no partner. He only arrived from Liverpool three days before the Show, but even as he was, the splendid plumage in which the wild breed surpasses all domestic varieties attracted much notice and commendation.

Game Bantams.—In the Reds, nearly all the birds had gone more or less soft from repeated showing, but the cup pen stood grandly out, and no judge could have decided otherwise. In the "other variety" class the first-prize pen contained a beautiful young cock, with a hen far from worthy of him. Mr. Eaton's second were also a good pair, not having been shown before; but to the rest the same remark as to condition will fully apply. The Single cocks (any variety), was the treat of the Game classes. The cup bird was simply perfect: where he comes from we do not know, but he was the counterpart of Mr. Eaton's exquisite Palace Duckwing (which has changed hands for twenty guineas), and he fairly beat Mr. Eaton's own bird, winner at both the Palace and Birmingham Show, which was put third. Second was a good bird, but with a squirrel tail, and every Bantam-breeder allowed that second and third should have changed positions. But of this we are certain—that the lot were the three best Black Reds that we have ever seen together at one show.

In Black Bantams the cup went to Bristol, the pair being very fine, and in fact ten guineas were offered for them almost immediately the Show was opened. As to the other prizes, there were about four pens so nearly equal that they might have cast lots for second and third. Mr. Maynard's pen, 799, was much admired, but the hen was too gamey for a Black, and her dark gipsy face, together with her shape, might cause suspicion of a Brown Red cross. The cup Whites were beautiful birds. In Sebrights Mr. Leno swept the whole list, as usual of late; but we must say, looking at these birds year by year, we do not think they are improving.

Mr. Teebay judged the Game, Hamburghs, and Game Bantams; Messrs. Hewitt and Teebay the Brahmas (both varieties);

the Rev. G. Hodson all other Bantams, French Fowls, and we think the Any variety class; Mr. Hewitt, Polish, Geese, Ducks, and Turkeys; and we believe Messrs. Hewitt and Hodson the rest.

DORKINGS (Coloured).—*Cockerel.*—1, W. Arkwright, Sutton Scarsdale, Chesterfield. 2 and 3, L. Patton, Hillmore, Taunton. *hc*, E. Burton, Truro; A. Darby, Bridgnorth; J. B. Saunders, Taunton; R. W. Beachey, Fluder, Kingskerswell. *c*, J. Martin, Claines, Worcester. *Pullets.*—1, L. Patton. 2, W. Arkwright. 3, Mrs. G. Meek, Balcombe. *hc*, J. Martin; Lieut.-Col. Lane, Bracknell; A. Darby; E. Burton; Mrs. E. Wheatley, Ingatestone; R. W. Beachey. *c*, R. W. Beachey.

DORKINGS (Coloured).—*Cock.*—1 and Cup, L. Patton. 2, J. Martin. 3, Lieut.-Col. Lane. *hc*, O. E. Cresswell, Early Wood, Bagshot; J. W. Will, Errol. *Hens.*—1, Cup, and 2, L. Patton. 3, R. W. Beachey. *hc*, E. Burton; J. Watts, King's Heath, Birmingham; J. Martin; Hon. H. W. Fitzwilliam, Wentworth Woodhouse; L. Patton; F. Wilton, Gloucester.

DORKINGS (Silver-Grey).—*Cockerel or Cock.*—1, Withheld. 2, O. E. Cresswell. 3, E. Burton. *Pullets or Hens.*—1 and 3, O. E. Cresswell. 2, W. E. George.

DORKINGS (White).—*Cockerel or Cock.*—1, J. Robinson, Garstang. 2 and 3, Mrs. M. A. Hayne, Fordington. *Pullets or Hens.*—1, J. Robinson. 2, Mrs. M. A. Hayne. 3, O. E. Cresswell.

COCHINS (Cinnamon and Buff).—*Cockerel.*—1, H. Lloyd, jun. 2, J. W. Will. 3, W. A. Taylor, Manchester. *hc*, Lady Gwydyr, Stoke Park, Ipswich; J. K. Fowler, Aylesbury; Mrs. Allsopp, Hindlip Hall, Worcester; W. A. Taylor. *Pullets.*—1, W. A. Taylor. 2, Lady Gwydyr. 3, C. Bloodworth, Cheltenham. *hc*, W. A. Burnell, Southwell; J. K. Fowler; Mrs. Allsopp, Cheltenham; A. Darby; Henry Lingwood, Barking, Needham Market. *c*, J. Pares, Postford, Guildford.

COCHINS (Cinnamon and Buff).—*Cock.*—1 and Cup, W. A. Taylor, Manchester. 2, W. A. Burnell. 3, W. A. Taylor. *hc*, H. Lloyd, jun., Handsworth; Lady Gwydyr. *Hens.*—1 and 2, W. A. Taylor. 3, H. Lloyd, jun. *hc*, W. A. Burnell; J. Watts; A. Darby.

COCHINS (Brown and Partridge).—*Cockerel.*—1, W. A. Taylor. 2, Mrs. Allsopp. 3, J. K. Fowler. *hc*, E. Tudman, Whitchurch, Salop; W. A. Taylor; J. N. C. Pope, Stoke Bishop. *c*, J. N. C. Pope. *Pullets.*—1 and *c*, W. A. Taylor. 2, J. N. C. Pope. 3, J. K. Fowler. *hc*, C. F. Wilson; E. Tudman.

COCHINS (Brown and Partridge).—*Cock.*—1, J. K. Fowler. 2, E. Tudman. 3, J. N. C. Pope. *Hens.*—1 and 3, W. A. Taylor. 2, E. Tudman.

COCHINS (White).—*Cockerel.*—1, J. N. Whitehead, Gnaton, Torquay. 2, R. S. S. Woodgate, Pembury, Tunbridge Wells. 3, Mrs. A. Williamson. *hc*, R. S. S. Woodgate; R. Chase, Wylde Green, Birmingham; A. J. E. Swindell, Kinver, Stourbridge; C. Bloodworth. *c*, P. Collins, Daventry; J. Bloodworth, Cheltenham; R. Chase. *Pullets.*—1, R. S. S. Woodgate. 2, R. Chase. 3, Mrs. A. Williamson. *hc*, R. S. S. Woodgate; Capt. F. G. Coleridge, Wargrave; J. Sichel, Lark Hall, Timperley. *c*, Capt. F. G. Coleridge; J. N. Whitehead.

COCHINS (White).—*Cock.*—1 and 2, J. Sichel. 3, R. S. S. Woodgate. *c*, J. N. Whitehead. *Hens.*—1 and Cup, R. S. S. Woodgate. 2, J. N. Whitehead. 3, Mrs. A. Williamson. *hc*, J. Sichel.

BRAHMAS (Dark).—*Cockerel.*—1, Hon. Mrs. A. B. Hamilton. 2, E. Ensor. 3, Mrs. A. Vigor, Southfield, Uxbridge. *hc*, Lady Gwydyr; J. K. Fowler; E. Ensor, Bristol (2); E. Burton; J. W. Will; W. Arkwright; Howard & Nicholls (2); A. Rigg; G. F. Whitehouse. *c*, W. E. George, Stoke Bishop. *Pullets.*—1 and Cup, Hon. Mrs. A. B. Hamilton, Ridgmont, Woburn. 2, L. Wright, Bristol. 3, H. B. Morrell, Cae Mawr, Clyro. *hc*, J. Watts; W. E. George; L. Wright (2); W. Arkwright; E. Ensor; Hon. Miss D. Pennant; J. W. Will; G. F. Whitehouse, King's Heath, Birmingham; A. Rigg; J. S. Tainton, Gloucester. *c*, Lady Gwydyr.

BRAHMAS (Dark).—*Cock.*—1 and Cup, T. F. Ansdell, Cowley Mount, St. Helen's. 2, W. Adams, St. Clements, Ipswich. 3, L. Wright. *hc*, T. F. Ansdell; W. A. Taylor; E. Burton. *c*, Hon. Miss D. Pennant, Penrhyn Castle, Bangor; Hon. Mrs. A. B. Hamilton. *Hens.*—1, T. F. Ansdell. 2, Lady Gwydyr. 3, W. Arkwright. *hc*, H. B. Morrell (3); T. F. Ansdell; J. Watts. *c*, Rev. J. Bowen, Talgarth; J. Sichel; Hon. Miss D. Pennant.

BRAHMAS (Light).—*Cockerel.*—1 and Cup, M. Leno. 2, Capt. Downman, Beechgrove, Kingstown. 3, F. Crook. *hc*, Rev. J. D. Hoystead, Bradenstoke, Chippenham; H. M. Maynard, Holmewood, Ryde; J. Long, Plymouth; Rev. J. D. Hoysted; J. R. Rodbard, Wrington, Bristol; W. E. George; J. Long. *c*, J. Pares. *Pullets.*—1, Cup, and 2, Mrs. A. Williamson. 3, M. Leno, Markyate Street. *hc*, W. E. George (2); Rev. J. D. Hoysted. *c*, J. R. Rodbard; Mrs. T. Turner, Avon, Ringwood.

BRAHMAS (Light).—*Cock.*—1 and Cup, Mrs. A. Williamson. 2, Mrs. A. Worthington, Burton-on-Trent. 3, H. Dowsett, Pleshey, Chelmsford. *Hens.*—1, Cup, and 2, J. R. Rodbard. 3, J. Bloodworth. *hc*, F. Crook, Forest Hill (2); Mrs. A. Worthington.

SPANISH.—*Cockerel.*—1 and Cup, Mrs. Hyde, Bedminster. 2, Rev. E. Lascelles. 3, Howard & Nicholls. *hc*, E. Jones (3); H. Beldon, Goitstock, Bingley; Mrs. Allsopp; Mrs. Hyde. *c*, E. Jones, Clifton; F. James, Peckham Rye. *Pullets.*—1 and Cup, Mrs. Hyde. 2, Hon. Miss D. Pennant. 3, E. Jones. *hc*, E. Jones; Howard & Nicholls; F. James; T. Bush, Bristol; Hon. Miss D. Pennant. *c*, E. Jones; T. Bamfield, Brandon Hill, Clifton; Mrs. Allsopp.

SPANISH.—*Cock.*—1, J. R. Rodbard. 2, T. Bush. 3, A. Rumbolds, Bristol. *Hens.*—1, H. Beldon. 2, E. Jones. 3, T. Bamfield. *hc*, Miss E. Brown, Chardleigh Green.

FRENCH.—*Cockerel or Cock.*—1 and Cup, W. R. Park (Crève-Cœur). 2, J. Sichel (Crève-Cœur). 3, J. C. Cooper, Cooper's Hill, Limerick. *hc*, J. K. Fowler; Hon. C. W. Fitzwilliam (La Flèche); H. Ferris, Cleve (La Flèche). *Pullets or Hens.*—1 and Cup, J. J. Malden, Biggleswade (Crève-Cœur). 2, W. Dring. 3, R. B. Wood, Uttoxeter. *hc*, J. Sichel (Crève-Cœur); W. R. Park, Melrose (Crève-Cœur).

HAMBURGHS (Gold-spangled).—*Cockerel or Cock.*—1 and Cup, C. Parsons, Wolverhampton. 2, Mrs. Hyde. 3, H. Beldon. *hc* and *c*, W. A. De Winton, Durdham Down, Bristol. *Pullets or Hens.*—1, C. Parsons. 2, Mrs. Hyde. 3, J. Forsyth, Wolverhampton. *hc*, W. A. De Winton; J. Watts.

HAMBURGHS (Silver-spangled).—*Cockerel or Cock.*—1, J. Robinson. 2, H. Beldon. 3, C. Parsons. *hc*, Miss E. Browne. *Pullets or Hens.*—1 and Cup, H. Beldon. 2, C. Parsons. 3 and *hc*, Miss E. Browne.

HAMBURGHS (Gold-pencilled).—*Cockerel or Cock.*—1 and Cup, C. Parsons. 2, N. Barter. 3, C. Bloodworth. *hc*, H. Beldon; J. Robinson. *c*, C. Bloodworth; J. Walker, Birstwith; F. Pittis. *Pullets or Hens.*—1 and Cup, C. Bloodworth. 2, J. Walker. 3, N. Barter. *hc*, J. Walker; H. Beldon.

HAMBURGHS (Silver-pencilled).—*Cockerel or Cock.*—1, H. Beldon. 2, J. Robinson. 3, F. Pittis, jun., Newport, Isle of Wight. *hc*, J. Walker; N. Barter. *Pullets or Hens.*—1, H. Beldon. 2, N. Barter. 3, C. Parsons.

HAMBURGHS (Black).—*Cockerel or Cock.*—1 and 2, Rev. W. Serjeantson, Acton Burnell Rectory. 3, C. Parsons. *hc*, C. F. Wilson; C. Parsons. *Pullets or Hens.*—1, Rev. W. Serjeantson. 2, T. Bush. 3, W. A. Taylor. *hc*, H. Beldon.

GAME (Black-breasted Reds).—*Cockerel or Cock.*—1 and Cup, J. Forsyth. 2, J. Fletcher, Stoneclough, Manchester. 3, G. R. Smith. *hc*, W. H. Stagg, Netheravon; S. Matthew, Stowmarket; J. Frith, Chatsworth; W. Boyes, Beverley; P. P. Cother, Salisbury. *c*, W. H. Stagg; J. Forsyth; G. Bagnall. *Pullet or Hen.*—1 and Cup, S. Matthew. 2 and 3, W. H. Stagg. *hc*, J. Fletcher; W. H. Stagg; G. Bagnall, Draycott, Cheadle; H. Beldon.

GAME (Brown-breasted Reds).—*Cockerel or Cock.*—1 and 3, W. Boyes. 2, S. Matthew. *hc*, J. Fletcher. *Pullet or Hen.*—1, S. Matthew. 2, J. Fletcher. 3, J. Frith.

GAME (Duckwings and other Greys and Blues).—*Cockerel or Cock.*—1 and 2, S. Matthew. 3, E. Martin. *hc*, W. Boyes. *Pullet or Hen.*—1, S. Matthew. 2, T. West, St. Ann's, Eccleston, St. Helen's. 3, J. T. Browne, St. Austell.

GAME (Any other variety).—*Cockerel or Cock.*—1, J. Frith (Pile). 2, J. Fletcher (Pile). 3, J. Bird, Bristol (Pile). *Pullet or Hen.*—1, J. Frith (Pile).

GAME BANTAMS (Black-breasted and other Reds).—1, Cup, and 3, J. W. Morris, Rochdale. 2, W. Adams. *hc*, J. R. Robinson, Sunderland (2); J. Frith; S. Lang; C. H. Ames, Henley; J. Eaton. *c*, J. Eaton.

GAME BANTAMS (Any other variety).—1, G. Hall. 2, J. Eaton. 3, J. Frith. *hc*, J. Eaton; W. Adams.

GAME BANTAMS (Any variety).—*Cock.*—1 and Cup, G. Hall. 2, J. R. Robinson. 3, J. Eaton. *hc*, J. W. Morris; J. R. Robinson.

BANTAMS (Black Clean-legged).—1 and Cup, E. Cambridge, Cotham, Bristol. 2, Mrs. A. Worthington. 3, H. M. Maynard. *hc*, H. M. Maynard; T. Bush. *c*, T. Bush; W. A. Taylor.

BANTAMS (White Clean-legged).—1 and Cup, Rev. F. Tearle. 2, H. Beldon. 3, Ladies Moreton, Tortworth Court.

BANTAMS (Gold and Silver Sebrights).—1, 2, and 3, M. Leno.

POLISH.—*Cockerel or Cock.*—1, Cup, and 3, G. C. Adkins. 2, H. Beldon. *hc*, J. Hinton, Warminster; G. C. Adkins, Lightwoods, Birmingham; H. Beldon. *Pullets or Hens.*—1, Cup, and *hc*, G. C. Adkins. 2 and 3, H. Beldon. *c*, J. Hinton.

MALAY.—*Cockerel or Cock.*—1, Cup, and *c*, T. Hollis, Twyford, Berks. 2 and 3, Rev. A. G. Brooke, Shrawardine. *hc*, J. W. Shaw, Birmingham. *Pullet or Hen.*—1 and 3, T. Hollis. 2, Rev. A. G. Brooke. *hc*, W. B. Payne, Shrewsbury; Rev. A. G. Brooke; J. W. Shaw. *c*, J. Hinton.

ANY OTHER VARIETY.—*Cockerel or Cock.*—1, R. S. S. Woodgate. 2, J. Sichel (Pekin). 3, C. M. Hole, Tiverton. *hc*, Rev. N. J. Ridley, Newbury (Leghorn); W. Boyes (Sultan); J. Sichel (Sultan). *c*, E. Burton (Minorca). *Pullets or Hens.*—1 and Cup, R. Wilkinson, Guildford (White Minorcas). 2, W. Boyes (Sultans). 3, Mrs. P. Taaffe, Castle Plunkett (Black Cochins). *hc*, R. S. S. Woodgate; W. Jarrett, Bristol; Rev. F. Tearle, Gazeley Vicarage, Newmarket (Cuckoo Dorkings); Godfrey & Reeves (Cochin-Chinas direct from Shanghai); J. Sichel (Pekin); J. Bird (Black Minorcas); F. Wilton (Black Cochins). *c*, J. Watts; H. Beldon (Mufflers).

DUCKS (White Aylesbury).—1 and 2, H. Jones, Hartwell, Aylesbury. 3, L. H. Ricketts.

DUCKS (Rouen).—1 and 2, L. Patton. 3, J. N. C. Pope. *hc*, R. Gladstone, jun., Broadgreen, Liverpool. *c*, J. K. Fowler (2); Rev. J. J. Evans, Cantreff Rectory.

DUCKS (Black East Indian).—1, G. S. Sainsbury. 2, Mrs. M. A. Hayne. 3, R. S. S. Woodgate. *hc*, S. Burn, Whitby (2). *c*, W. E. George; F. Pittis, jun. (2); Mrs. M. A. Hayne.

DUCKS (Any other variety).—1 and 3, M. Leno (Carolina and Viduata Whistling). 2, S. Burn (Mandarin). *hc*, J. Sinnott, Bedminster Down (Mandarin); J. Watts; M. Leno (Mandarin). *c*, W. Simpson, Westchester Co., New York (Black Cayuga, from America) (2).

GEESE (Embden and Toulouse).—1, J. K. Fowler. 2, J. Watts. 3, J. C. Cooper.

GEESE (Any other variety).—1, W. E. George (White Chinese). 2, J. K. Fowler (Half-bred).

TURKEYS (Any variety).—1, F. Lythall, Banbury (American and Cambridge). 2 and 3, L. Patton (Cambridge). *hc*, Rev. N. J. Ridley (Cambridge). *c*, W. Simpson (Pure American wild breed).

PIGEONS.

CARRIERS (Blue or White).—1 and Cup, H. Yardley, Birmingham. *c*, R. Fulton, Deptford (2).

CARRIERS (Black or Dun).—1, Cup, and 2, R. Fulton. *vhc*, E. Horner. *hc*, H. Yardley; E. Horner, Harewood, Leeds. *c*, H. M. Maynard; R. Fulton.

POUTERS.—*Cocks.*—1, Cup, and 2, F. Gresham, Shefford. *vhc*, R. Fulton. *hc*, E. Horner; E. T. Dew, Weston-super-Mare. *c*, R. Fulton (2). *Hens.*—1, E. Horner. 2 and *vhc*, F. Gresham. *hc*, R. Fulton.

TUMBLERS (Almond).—1, J. Fulton. 2, J. Ford. *vhc*, E. Horner. *hc*, J. Ford; J. Fielding, jun., Rochdale.

JACOBINS.—1 and 2, R. Fulton. *vhc*, Mrs. A. Vigor; R. Fulton. *hc*, H. M. Maynard.

BARBS.—1 and Cup, W. B. Van Haansbergen, Newcastle-on-Tyne. 2, *vhc*, and *hc*, R. Fulton.

FANTAILS.—1 and Cup, H. Yardley. 2, W. B. Van Haansbergen. *vhc*, Rev. W. Serjeantson. *hc*, H. M. Maynard. *c*, E. Horner; H. Yardley.

TRUMPETERS.—1 and 2, E. Horner. *vhc*, W. B. Van Haansbergen. *hc*, R. Fulton.

OWLS (English).—1, Master E. Gamon, Chester. 2, J. Watts.

NUNS.—1, E. Horner. 2, T. A. Dean, Marden, near Hereford. *c*, F. Wilton; W. B. Van Haansbergen; E. Horner.

TURBITS.—1 and 2, O. E. Cresswell. *vhc*, G. Roper, Croydon. *c*, E. T. Dew.

TUMBLERS (Any other variety).—1 and Cup, J. Fielding, jun. 2, R. Fulton. *c*, J. Ford, Monkwell Street, London; W. B. Van Haansbergen.

DRAGOONS.—1 and *hc*, E. Horner. 2, F. Graham, Birkenhead. *c*, H. Yardley Birmingham.

ANTWERPS.—1, W. E. George. 2, W. Arkwright. *vhc*, W. R. Webb, Clifton. *hc*, E. F. Wilson, Brighton; E. Horner. *c*, J. Sinnott; E. F. Wilson; Master E. Gamon; H. Yardley.

ANY OTHER DISTINCT VARIETY.—1, J. Fielding, jun. 2, Rev. A. G. Brooke (Maltese). *hc*, W. C. Dawson, Otley (Ice).

WISHAW ORNITHOLOGICAL ASSOCIATION.

THE Wishaw Ornithological Association held their annual Exhibition of poultry, Pigeons, and Canaries on January 1st.

DORKINGS.—1, J. Anderson, Cleckhiminn. 2 and 3, W. Good, Chapelhall. *Chickens.*—1, J. Henderson, Cleckhiminn. 2, G. Scott, Kilbank. 3, W. Good.

SPANISH.—1, J. Young, Craigneuk. 2, J. Wilson, Lesmahagow. 3, Mrs. Houldsworth. *Chickens.*—1, A. White, Watsonville. 2, Mrs. Houldsworth. 3, A. M'Donald, Airdrie.

HAMBURGHS.—*Golden-pencilled.*—1 and 2, J. Frame, Wishaw. 3, — Hamilton, Gillhead. *Golden-spangled.*—1, J. Pollock, Pather. 2, J. Frame, Bankhead. 3, A. Williams, Greenvale. *Silver-spangled.*—1, M. R. Mackie, Stewarton. 2 and 3, J. Watson, Lanark. *Silver-pencilled.*—1, G. Scott, West Kilbank. 2, J. Pollock, Cambuslang. 3, W. Coke, Abington.

GAME.—1, J. Daston, Carnwarth. 2, J. London, Wishaw. 3, D. Watt, Wishaw. *Chickens.*—1, A. Gray, Gillhead. 2, D. Wardrop, Crofthead. 3, H. Walker, Stonehouse.

SCOTCH GREYS.—1 and 2, A. Hastie, Carluke. 3, J. Meiklem, Hamilton.

GAME BANTAMS.—1, J. Cockburn, Larkhall. 2, A. Williams. 3, R. Gavin, Newarthill.

BANTAMS.—*Gold or Silver.*—1, Mrs. Houldsworth. 2, R. Bryden, Lochmaben. 3, A. Johnstone, Bothwell. *Any other Colour.*—1 and 2, H. L. Hoar, Airdrie. 3, H. Walker.

DUCKS.—*Aylesbury.*—1 and 2, J. Crawford, Hamilton. 3, G. Scott. *Any other Variety.*—1, R. Graham. 2, J. Crawford. 3, W. Coke.

ANY OTHER DISTINCT BREED.—1 and 2, W. Gibb, Cambusnethan. 3, J. Daston, Carnwarth.

SELLING CLASS.—1, J. Watson, Lanark. 2, W. Stevenson, Chapelhall. 3, G. Scott.

PAIR OF POULTRY.—Prize, R. Mackie, Stewarton, Ayrshire.

PIGEONS.

POUTERS.—*Black.*—1, J. Orr, Wishaw. 2, J. Johnstone, Wishaw. *Blue.*—1, J. Bailie, Wishaw. 2 and 3, W. Lindsay, Wishaw. 4, R. Arbuckle, Glasgow. *White.*—1, W. Lindsay. 2, J. Forest, Quarter. 3, A. Brown, Wishaw. *Any other Variety.*—1, J. Grey. 2 and 3, W. Lindsay.

TUMBLERS.—*Long-faced.*—1, T. Imrie, Ayr. 2, W. Anderson, Glasgow. 3, W. Lindsay.

JACOBINS.—1, W. Anderson. 2, A. Williams.

FANTAILS.—1, J. Bailie. 2 and 3, J. Ritchie, Draffan.

ANY OTHER VARIETY.—1, W. Anderson. 2 and 3, A. Brown.

SELLING CLASS.—1, J. Scott, Overtown. 2, J. Grey. 3, A. Johnstone, Bathgate.
PAIR OF PIGEONS.—W. Lindsay, Wishaw.

CAGE BIRDS.

CANARIES.—*Yellow.*—Cock.—1, J. Loughran, Lanark. 2, M. Gilmour, Glasgow. 3, T. Lindsay. *Buff.*—*Cock.*—1, J. Smith, Coatbridge. 2, J. Graham, Ruthergien. 3, J. Walkin-haw, Lanark. *Yellow.*—*Hen.*—1, J. London. 2, R. Pettigrew, Carluke. 3, T. Lindsay. *Buff.*—*Hen.*—1, J. London. 2, D. Gibb. 3, E. Hunter, Bigside. *Yellow Piebald.*—*Cock.*—1, R. Paterson, Wishaw. 2, T. Vallcns, Glasgow 3, J. Stewart, Carluke. *Buff Piebald.*—*Cock.*—1, M. Comrie, Lanark. 2 and 3, J Smith. *Yellow Piebald.*—*Hen.*—1, R. Bryden. 2, W. Meehrie, Lanark 3, E. Hunter *Buff Piebald.*—*Hen.*—1, J. Graham. 2, J. Smith. 3, E. Hunter *Piebald.*—*Buff Cock and Yellow Hen, or Yellow Cock and Buff Hen.*—1, T. Lindsay. 2, J. Watsoo.
MODEL GREEN.—*Yellow or Buff.*—*Cock.*—1, J. Johnstone. 2, A. Paterson, Glasgow. 3, T. M'Dale, Auchanheath. *Hen.*—1, J. Johnstone. 2, J. Taylor. 3, M. Comrie.
GOLDFINCH MULE.—*Yellow or Buff.*—*Cock.*—1, 2, and 3, A. Hamilton.
SCOTCH FANCY.—*Yellow Cock and Buff Hen, or Buff Cock and Yellow Hen.*—1, J London. 2, T. M'Millan. 3, D. Watt.
CANARY BIRD.—J. Smith, Coatbridge.
PIEBALD.—R. Bryden, Lochmaben.

JUDGES.—*Poultry :* Messrs. W. Smith, Wishaw; Tuille, Chapelhall; Purdie, Abington; Logan, Carnwarth. *Pigeons :* Messrs. D. K. Mackay, Glasgow; A. Young, Carluke. *Canaries :* Messrs. G. Grant, Glasgow; J. Brown, Pollockshaws; J. Lindsay, Hamilton; J. Rennie, Wishaw.

CORK AND SOUTH OF IRELAND POULTRY SHOW.

THE twelfth annual Exhibition of the South of Ireland poultry, Pigeon, and Cage Bird Associatiou was open ed on the 3rd inst., in the Assembly Rooms, South Mall, Cork. The Show was larger than usual, and the quality of the birds far superior to any specimens hitherto exhibited. The Judge, Mr. Jones, stated that he had not seen better poultry and Pigeons at any of the shows which he had judged in England lately.

A small number of *Brahma Pootras* were exhibited, but of excellent quality. The *Cochin* fowls were an excellent class. The *Crève-Cœurs* attracted much attention, and the Spangled and Pencilled *Hamburghs* were particularly good, the prize-winners in both classes being birds of especial merit. There was a small entry of *Polish* fowl, but the quality was very good. The show of *Turkeys* was not as large as was expected. Notwithstanding the inducements of class prizes and,the offer of a silver cnp by Mr. Wilson, Victoria Hotel, the entries in this class were fewer than in former years. The collection of *Ducks* was large and the quality good. A pair of Black *Swans* were exhibited by Colonel Stawell.

In the *Pigeon* department the Pouters were especially good; and the Carriers, though small in number, were of excellent quality. The Barbs exhibited were as usual very good. Mr. Dowling has not been as successful as usual, as his best birds were away at Manchester, where they took the first prize, and were sold for fifteen guineas the pair. The Owls were far better than any before exhibited, and the prize pair were perfect gems in their way. The Trumpeters were of a class superior to any ever before exhibited in Cork. The entries in Jacobins, which were an extremely good class, were unusually large, and gave the Judge considerable trouble in deciding which was to carry off the blue ribbon. The Nuns were small in entry, but of very good quality. The Turbits were largely represented and were specially good, nearly every bird in the class being commended. The Magpies were far better than any previously shown, but the Tumblers were few in number, and those shown but middling. In the Variety class the first prize was won by a magnificent pair of White Dragoons; and the Society's silver medal for the winner of the greatest number of prizes was awarded to one of the local exhibitors, Mr. John Dowling, of Blackrock.

The show of *Cage Birds* was remarkably large and good. There was a magnificent collection of Canaries. The Bullfinches, Goldfinches, and Linnets were tolerably good, and these classes seem to be improving. The Blackbirds, Thrushes, and Larks were of a fair class, and a good number were exhibited. In the Variety class a very handsome pair of Cockateels took the first prize, and a cage of ornamental birds were, on account of their extreme beauty, a principal attraction for the ladies.

In consequence of an incorrect entry, Mr. Perrin was disqualified in the class for Single Game Cocks, and the cnp was awarded to Mr. Cramer, the second prize to Mr. Ducrow, and the medal for the greatest number of prizes in poultry to Mr. J. C. Cooper.

SPANISH.—1, W. H. & G. A. Perrin, Loughlinstown. 2, J. C. Cooper, Limerick. *c*, T. A. Houd, Tullygarden; S. Mowbray, Mountrath; W. H. & G. A. Perrin.
DORKINGS (Grey).—1, J. C. Cooper. 2, S. Mowbray. c, Capt. Downman, Kingstown. *Chickens.*—1, J. C. Cooper. 2, S. Mowbray. *hc*, T. O'Grady, Rochestown. *c*, Capt. Downman; T. O'Grady (2). *Coloured.*—1, W. H. and Queenstown. *Chickens.*—1, S. Mowbray. *White or other.*—1, Mrs. Hay (White). 2, J. Perry, Cork. *c*, Countess of Bandon, Castle Bernard, Bandon.
BRAHMAS.—*Dark.*—1, Lady A. Lloyd, Villierstown. 2, J. C. Cooper. *Chickens.*—1, J. C. Cooper. 2, L. F. Perrin, Loughlinstown. *c*, Lady A. Lloyd. *Light.*—1, 2, and *c*, Mrs. Hay. *hc*, Capt. Downman.
COCHINS.—*Buff or Cinnaman.*—1 and *c*, W. H. & G. A. Perrin (Buff). 2, Mrs. Hay. *hc*, Capt. Downman (Buff). *Chickens.*—1, W. H. & G. A. Perrin (Buff). 2, Mrs. Hay (Buff). *hc*, Capt. Downman (Buff); Mrs. Hay (Buff). *White or Partridge.*—1, W. H. and G. A. Perrin (Partridge). 2, J. K. Milluer, Dublin. *hc*, Mrs. Hay (Partridge.) *Any other colour.*—1, Miss Quin, Innishannon. 2, Col. Hassard, Kildare (White)
HOUDANS.—1, J. C. Cooper. 2, Viscountess Doneraile, Doneraile.
CRÈVE-CŒUR OR LA FLÈCHE.—1, J. C. Cooper. 2 and *hc*, Viscountess Doneraile (Crève-Cœur and La Flèche). *c*, Mrs. Dring, Cork (Crève-Cœur); E. J. Poer, Limerick (Crève-Cœur).
HAMBURGHS.—*Spangled.*—1, W. H. & G. A. Perrin (Silver). 2, Countess of Bandon (Silver). *Pencilled.*—1, S. Mowbray (Golden). 2, R. P. Williams, Clontarf.
POLISH.—1, W. H. & G. A. Perrin. 2, R. P. Williams. *c*, J. K. Milluer.
GAME.—*Black Red.*—1, W. H. & G. A. Perrin. 2 and *hc*, M. C. Cramer, Kinsale. *c*, P. Ducrow, Douglas; T. O'Grady. *Brown Red.*—1, M. C. Cramer. 2, W. H. and G. A. Perrin. *Any other colour.*—1 and 2, W. H. & G. A. Perrin. *c*, M. C. Cramer (Duckwing); E. J. Poer (Duckwing.)
GAME BANTAMS (Black Red).—Col. Hassard. 2, E. J. Poer. *c*, T. O'Grady; G. H. Bull, Cork; W. H. & G. A. Perrin (2).
GAME BANTAMS.—*Brown Red.*—1, E. J. Poer. *Any other colour.*—1 P. Ducrow (Pile). 2, E. J. Poer (Duckwing). *hc*, W. H. & G. A. Perrin. *c*, J. Hosford, Cork.
TURKEYS (Any variety).—1, J. C. Cooper. 2, S. Mowbray (Cambridge). *hc*, T. O'Grady.
GEESE.—1, J. C. Cooper. 2, Mrs. V. Tomkins (Danubian).
DUCKS.—*Rouen.*—1, R. P. Williams. '2, S. Mowbray. *hc*, J. C. Cooper. *c*, W. H. Massy, Macroom. *Aylesbury.*—1, S. Mowbray. 2, R. P. Williams. *hc*, J. C. Cooper. *c*, N. E. Wallace, Dublin.
WATERFOWL (Any other variety).—1, R. P. Williams (Bahama Ducks). 2, Col. W. St. L. A. Stawell (Black Swans). *c*, T. Babington, Cork (Muscovy Ducks).
ANY OTHER VARIETY.—1, Col. W. St. L. A. Stawell (Golden Pheasants). 2, Master C. H. Purcell, Mallow (Sebright Bantams). *hc*, Mrs. Dring (Black Hamburghs). *c*, Countess of Bandon (Japanese Bantams); S. Mowbray (Scotch Greys); Col. W. St. L. A. Stawell (Common Pheasants).
SELLING CLASS.—1, Mrs. Hay (Buff Cochins). 2, S. Mowbray (Dorkings). 3, J. K. Milner. *hc*, J. Perry (Buff Cochins); W. H. & G. A. Perrin; Mrs. Hay (Coloured Dorkings); H. L. Tivy, sen., Cork (Black Spanish). c, Lady A. Lloyd (Light Brahmas); J. C. Cooper; Col. Hassard (Black Red Game Bantams); P. Ducrow (Black Red Game); Mrs. M. E. Hughes, Rathcormack (Spangled Hamburgh); J. Perry (Spanish).
GAME (Not Bantam).—*Cock.*—1 and Cup, M. C. Cramer. 2 and *vhc*, P. Ducrow. *hc* and *c*, M. C. Cramer (Black Red).
TURKEYS.—*Poults.*—1 and Cup, J. C. Cooper. 2, Countess of Bandon.
DUCKLINGS (Any Breed).—1 and Cup, J. C. Cooper. 2, Mrs Taaffe, Plumket.
Medal for greatest number of points in poultry, Mr. J. C. Cooper.

PIGEONS.

POUTERS.—*Cocks.*—1 and 2, F. W. Zurhorst. *hc*, J. Dowling; J. Lloyd, Cork. *c*, J. Lloyd; H. Perrott, Cork. *Hens.*—1, J. H. Perrott. 2, F. W. Zurhorst. *c*, J. Dowling; J. Lloyd; J. K. Milluer.
CARRIERS.—*Cocks.*—1, J. Jeffries, Cork. 2, R. W. Smith, Cabir. *hc*, G. A. Wherland, Cork. *c*, G. A. Wherland; R. W. Smith. *Hens.*—1, J. Dowling. 2, G. A. Wherland.
BARBS.—*Black or Dun.*—1, G. A. Wherland. 2, J. Dowling. *hc*, J. Lloyd. *c*, J. Dowling; J. Lloyd. *Any other colour.*—1, G. A. Wherland (Yellow). 2 and *hc*, J. Dowling. *c*, W. H Bennett (Yellow.)
OWLS.—1, J. Dowling. 2, H. L. Tivy. *hc*, J. Jeffries; F. W. Zurhorst. *c*, W. J Rumley, Middleton (Blue).
TRUMPETERS.—1, J. H. Perrott. 2, *hc*, and *c*, H. L. Tivy.
JACOBINS.—1, W. R. Smith (Red). 2, T. O'Grady (White). *c*, J. Dowling; J. K. Milner; F. W. Zorhorst.
FANTAILS.—1, T. Martin, Kildare. 2, J. Dowling.
NUNS.—1 and 2, J. Dowling.
TURBITS.—1, W. J. Rumley. 2, H. L. Tivy. *c*, T. Martin; W. J. Rumley (2); J. M'Donnell; J. Dowling; J. K. Milluer.
MAGPIES.—1, L. F. Perrin. 2, J. M'Donnell. *c*, T. O'Grady; F. W. Zurhorst.
TUMBLERS.—1, J. Perry. 2, J. Dowling.
ANY OTHER VARIETY.—1, J. Dowling (Dragoons). 2, J. M'Donnell (White Barred Teek). *hc*, F. W. Zurhorst (Antwerps). *c*, J. K. Milluer.
SELLING CLASS.—1 and 3, J. Dowling. 2 and *hc*, R. W. Smith (Spots). *c*, J. M'Donnell; J. Dowling (2); R. Evans, jun., Cork (Blue Owls); J. Perry (Barbs); R. W. Smith (Yellow Jacobins).
CARRIERS.—1, 2, and *vhc*, G. A. Wherland. *c*, J. Dowling; J. Jeffries.
BARBS.—Medal, J. Jeffries. *hc*, W. J. Rumley; J. R. Wherland; J. Dowling. *c*, R. W. Smith.
TRUMPETERS.—Cup, J. H. Perrott.
JACOBINS (Black, Red, or Yellow).—Medal, R. W. Smith (Red). *hc*, F. W Zorhorst. *c*, W. J. Rumley (Yellow).
Medal, for greatest number of points in Pigeons, J. Dowling.

CAGE BIRDS.

CANARIES.—1 and *c*, T. Babington. 2, D. Ryan, Gardener's Hill. *hc*, D. Ryan; J. Penrose, Cork; A. Allan.
BULLFINCHES.—1, J. Dowling, jun.
GOLDFINCHES.—1, W. E. O'Hea, Cork. 2, D. Higgins, Cork. *hc*, D. Higgins; W. Stenson, Cork. *c*, J. Dowling, jun.
LINNETS.—1, E. Burke, Blackrock. 2, J. Dowling, jun. *hc*, J. A. Ross; W. E. O'Hea. *c*, Cork (2).
MULES.—1 and 2, R. Bull, Cork. *hc*, R. Jones, Cork; W. E. O'Hea; C. O'Brien, Cork.
BLACKBIRDS.—1, J. A. Ross. 2, P. Keating.
THRUSHES.—1, R. Jones. 2, W. Waters, Monkstown. *hc*, D. Higgins; J. Hobson, Cork; J. A. Ross. *c*, D. Connolly, Cork.
LARKS.—1, R Jones. 2 and *hc*, D. Higgins. *c*, J. Dowling, jun.; J. A. Ross.
ANY OTHER VARIETY.—1, D. A. Bayley, Cork (Cockateels). 2, J. Hosford (Cardinals). *hc*, Mr. M'Carthy (Starling); D. A. Bayley (African Parakeet).

JUDGES.—*Poultry and Pigeons :* Mr. P. H. Jones, Fulham, London. *Cage Birds :* Mr. T. O'Grady, The Court, Rochestown, Cork.

KIRKCALDY POULTRY SHOW.

THE twenty-first annual Show of the Fife and Kinross Ornithological Society was held in the Corn Exchange, Kirkcaldy, on the 1st and 2nd inst. This Society was at first established to encourage the cultivation of cage birds only, but for some time has included in its schedules poultry and Pigeons. On this occasion, although great numbers of shows were held simultaneously, it was a great success.

In the five *Game* classes there were forty-seven entries, many of the birds being of high quality and shown in fine order. The *Dorkings*, though not so numerous, were exceedingly good in colour (mostly of the Dark variety), and sound in feet; and the cup was awarded to a pair of hens. The *Cochins* were not quite equal to the Dorkings, but the *Brahmas* were very good. In the cock class the first prize was awarded to a well-developed cockerel, and the second to an adult bird. The cup was won by a capital pair of hens. Although a cup was offered for *Spanish*

the entries were small and the quality not high. The cup was here also awarded to hens. The entries of *Hamburghs* were good and the birds well shown. The Pencilled in both classes were superior to the Spangled. The first-prize Golden-pencilled cock was about perfect, as also the pullets, to which the cup was deservedly awarded. *Bantams* were numerous, but the quality of the Red Game Bantam cocks was not remarkable, although the pullets of that variety were much better, and the cup for Bantams was given to them. These birds were, however, shown in bell-shaped pens with no divisions, though placed far apart. The advisability of this we question very much, for when shown in full sight of each other it is almost impossible to catch the spirited little fellows in such a state of repose as to allow of a proper decision as to the style and carriage of wing. In the next class (as also in hens), Piles were first and Duckwings second, a pair of Wheaten pullets being third; and in the *Variety* class Silver Sebrights were first, Pekins second, and Japanese third. In the Variety class for large fowls the first were Crêve-Cœurs, the second Black Hamburghs, and third Silver Polands. Of *Ducks*, to which was devoted but one class, little can be said, the quality being poor. In the *Selling Class* for cocks a Dorking was first, a Dark Brahma second, and a Guinea fowl third; and among hens Game were first, Dark Dorkings second, and Brahmas third.

Of *Pigeons* Pouters were shown in two classes, and a cup was offered for this division. The first-prize Pouter cock was White, and won the cup also, his measurements heing 19¾ inches in feather, 7¼ in thigh, combined with a fine girth and good carriage, although he might have been cleaner. Second came a handsome Black Pied, 19 inches in feather and 7 in thigh, but not in good show. The third Blue Pied measured 19 inches and 6¾, but did not show well. Of hens the first-prize Black Pied ran closely for the cup, being 18 inches in feather, 7 inches in limb, very sound in colour, and in great show. The second-prize hen was White, 18 inches by 6¾, good in girth, and in prime order; and the third Blue Pied was 18 inches hy 7, but low in condition. Singular to say, there was no competition either in Carriers or Tumblers, but the Fantails were a good class, as also the Nuns, which on minute examination proved free from trimming. Of Jacobins the first were White and the second Red, the cup for the best pen in the Show (Pouters excepted), being awarded to the first-named pair. Turbits and Owls were of but moderate quality, the latter variety attaining the first position. Barbs were good in quality, but out of condition. In the Variety class the competition was severe, Black Swallows being first, Ice Pigeons second, and White Trumpeters third.

There was an extensive show of *Canaries*, all of which were of the Scotch Fancy, and said by the Judge to be of the highest merit.

GAME.—*Cock.*—1, R. Stewart, Blair Adam. 2, A. P. Cowan, Kelty. 3, J. H. Herriot, Kirkcaldy. *hc*, J. W. Will, Errol; D. Penman, Kirkcaldy; A. Stephen, Blairgowrie. *Reds.*—1, J. Fisher, Kirkcaldy. 2, J Al'an, Inverkeithing. 3, R. Stuart. *Chickens.*—Cup, R. Stewart. 2, J. Beveridge, Kirkcaldy. 3, A. Parker, Carnforth. *hc*, T. W. Mitchell: J. Danskin, Kirkcaldy; D. Harley, Edinburgh; J. Wishart, Kirkcaldy. *Any other Colour.*—Cup, J. Anderson, Kirkcaldy. 2, D. Harley. 3, Blaik & Young. *Chickens.*—1. D. Harley. Cup and 2, Blaik and Young. 3, Elder & Lyall, Kirkcaldy. *hc*, J. Lyall, Kirkcaldy; J. Elder, Kirkcaldy.

DORKINGS.—*Cock.*—1, D. Annan, Cupar. 2 and 3, T. Raines, Stirling. *hc*, Countess of Tankerville, Alnwick; Mrs. Tullis, Markinch; D. Gellatly, Meigle. *Hens.*—1, D. Gellatly. 2, T. Raines. 3, D. Annan. *hc*, A. Haggart, Leslie *Pullets.*—Cup. T. Raines. 2, Mrs. Tullis. 3, J. Robb, Leslie. *hc*, J. Haggart; J. Henderson, Dunfermline.

COCHIN-CHINA.—*Cock.*—1, R. Williamson, Grangemouth. 2, J. W. Will. 3, D. Gellatly. *Hens.*—1, R. Williamson. 2, Mrs. Oswald, Dunnikier. 3, Earl of Rosslyn, Dysart.

BRAHMA POOTRA.—*Cock.*—1, W. Brownlie, Kirkcaldy. 2, Lieut-Col. C. Rice-Cupar. 3, T. Raines. *hc*, Miss M. Morison, Alloa. *c*, Countess of Tankerville. *Hens.*—Cup, T. Raines. 2, Miss M. Morrison. 3, W. Brownlie. *hc*, J. W. Morrison.

SPANISH.—*Cock.*—1, D. M'Beath, Bridge of Allan. 2, W. Leslie, Anstruther. *Hens.*—Cup, A. Shepherd. 2. W. Leslie. 3, R. Dickie, Stirling.

HAMBURGH.—*Spangled.*—*Cock.*—1, Mrs. Brown, Abercairney. 2, G. & J. Duckworth, Church. 3, J. M. Campbell. *hc*, R. Dickson. *c*, W. R. Park. *Hens.*—1, G. & J. Duckworth. 2, R. Dickson. 3, J. M. Campbell. *hc*, J. W. Will; W. R. Park. *Pencilled.*—*Cock.*—1 and 3, A. Pratt, Kirkcaldy. 2, R. Dickson. *hc*, R. Thomson, Kirkcaldy: J. Morrison, Alloa. *c*, Countess of Tankerville. *Hens.*—Cup, W. R. Park. 2, Countess of Tankerville. 3, R. Dickson. *hc*, Countess of Tankerville; A. Pratt.

GAME BANTAMS.—*Reds.*—*Cock.*—1, A. Hutchison. Falkirk. 2, J. Young, Kirkcaldy. 3, Master D. Laing, Kirkcaldy. *hc*, J. Mitchell, Perth; Miss Brownlie; J. Scott, Broughtyferry; T. Raines. *Hens.*—1, G. Todd, Sunderland. 2, J. Archibald, Berwick. 3, Master D. Laing. *hc*, Miss G. Brownlie. *c*, J. Young: T. Raines. *Any other Colour.*—*Cock.*—1, W. Scott. 2, Master D. Browlie. 3, A. P. Cowan. *Hens.*—1, J. Archibald. 2, Master H. Brownlie. 3, Miss R. C. Frew, Sinclairstown, Kirkcaldy.

BANTAMS (Any other variety).—1, Master A. Frew. 2, T. Waddington, Feniscowles, Blackburn. 3, J. Archibald.

ANY OTHER VARIETY.—1, W. R. Park. 2, A. Pratt (Black Hamburghs). 3, T. Waddington. *c*, A. Wylie, Johnstone (Polands); G. W. Boothby, Louth (Polands); Earl of Rosslyn (Cuckoo Dorkings).

DUCKS.—1, R. Dickie. 2, R. Lockhart, Kirkcaldy. 3, J. Grieg, Kinglassie.

SELLING CLASS.—*Cock.*—1, J. Rutherford. 2, Miss G. Morrison. 3, J. Nairn, Levan. *hc*, A. Campbell, Kirkcaldy; J. Haggart; J. Rutherford; R. B. Heggie. Kirkcaldy. *Hens.*—1, R. Stewart. 2, A. Haggart. 3, Miss G. Morrison. *hc*, A, Small, Glasgow. *c*, S. Greenwood, Lochgelly.

PIGEONS.

POUTERS.—*Cock.*—Cup and *hc*. M'Gill Skinner, Edinburgh. 2, W. B. Van Haansbergen, Newcastle. 3, J. M'Gill, Elie. *Hens.*—1, W. B. Van Haansbergen. 2, J. M'Gill. 3, M'Gill Skinner.

FANTAILS.—1, J. G. Spence. 2, A. Crosbie. 3, W. B. Van Haansbergen. *hc*, A. Lockhart (2); J. G. Spence, Broughty Ferry.

NUNS.—1, T. Waddington. 2, W. B. Van Haansbergen. 3, R. B. Heggie. *hc*, T. Lockhart.

JACOBINS.—Cup, W. B. Van Haansbergen. 2, T. Waddington. 3 and *hc*, J. G. Spence.

TURBITS OR OWLS.—1, A. Crosbie (Owls). 2, W. B. Van Haansbergen. 3, Miss B. P. Frew. *hc*, M'Gill Skinner (Owls).

BARBS.—1, W. B. Van Haansbergen. 2, T. Waddington. 3, A. G. M'Niel Coupar Angus.

ANY OTHER VARIETY.—1, A. Crosbie, Melrose (Letz). 2, T. Waddington (Porcelains). 3, W. B. Van Haansbergen. *hc*, T. Lockhart (Dragoons); Miss R. C. Frew.

CANARIES.

SCOTCH FANCY (Yellow).—*Cock.*—1 and 3, W. Muirhead, jun., Alloa. 2, W Innes, Kirkcaldy. *Hen.*—1, J. Bennet, Kirkcaldy. 2, W. Muirhead, jun. 3, R Hunter.

BUFF.—*Cock.*—1 and 3, A. Pearson, Alloa. 2, J. Mullion, Perth. *Hen.*—1, W Rutherford, Perth. 2, W. Muirhead, jun. 3, D Duncan, Carron.

YELLOW FLECKED.—*Cock.*—1, J. Sime, Falkirk. 2, J. Hogg, Dunfermline. 3, G. Spence. *Hen.*—1, G. Spence. 2, R. Farmer, Glasgow. 3, C. Smith.

BUFF FLECKED.—*Cock.*—1, J Hogg. 2, G. Spence. 3, J. Mitchell, *Hen.*—1, J. Sime. 2, W. Innes. 3, D. Kilgour, Dunfermline.

GOLDFINCH MULE (Yellow or Buff).—*Cock*—1, W. Kirk. 2 and 3, J. Robertson.

The first eighteen classes of *Poultry* were judged hy Mr. R. Teebay, Fulwood, Preston; the last nine classes, and *Pigeons*, by Mr. E. Hutton, Pudsey, Leeds; and the *Canaries* y Mr. James Robertson, Burntisland.

NORTHERN POULTRY SHOW.

THE sixth annual Exhibition of poultry and Pigeons opened at Aberdeen on the 5th inst. The entries were about equal to those of last year, but the quality of the birds, in general, superior. Year by year, as poultry-breeders gain experience, the quality is being more and more equalised, few inferior birds being now sent for exhibition. The classes were, almost without exception, well represented. *Dorkings*, *Brahmas*, and *Game* were most conspicuous. Indeed, we believe the show of Game fowls, both as regards the number of entries and quality, has never been equalled at any Aberdeen Show. *Geese* were a very good class, although not numerous. *Turkeys* and *Ducks* figured well, there being in the former class some very superior birds.

The show of *Pigeons* was scarcely so successful as that of last year, so far as numbers were concerned. The quality was, however, equally good. Some fine specimens of Carrier Pigeons attracted no little attention.

The following is the prize list:—

DORKINGS (Silver-Grey).—1, Mrs. M'Donald, Forres. 2, M. Edwards, Hilton Alloa. 3, G. Black. *hc*, W. Meff, Aberdeen. *c*, A. Divorty, Aberdeen. *Hens.*—1, Cup, and 3, W. Meff. 2, M. Edwards. *hc*, T. Raines, Stirling. *Cockerel.*—1 and 2, W. Meff. 3, T. Raines. *hc*, Miss E. Taylor, Kinnellar, by Blackburn. *c*, L. Stewart, Keig, by Whitehouse; W. Meff. *Pullets* —1, J. Mitchell, Caiesmill, Blackburn. 2, *hc*, and *c*, W. Meff. 3, Mrs. M'Donald.

DORKINGS (Coloured).—*Cock.*—1 and Cup, H. Stephenson, Tillyfour. 2, Mrs. M'Donald. 3, E. Fearon, Whitehaven. *Hens.*—1, Mrs. Morrison, Stirling. 2 and *c*, Miss Lind, Ladiesford, by Fraserburgh. 3, Miss D. Fordyce. *hc*, J. Clark, Fochabers. *Cockerel.*—1, T. Raines. 2, J. Clark 3, W. Meff. *hc*, W. D. Fordyce. *Pullets.*—1, T. Raines. 2, H. Stephenson. 3, A. Shepherd, Meigle. *hc*, W. D. Fordyce. *c*, Mrs. Morrison.

SPANISH.—1 and 3, A. Shepherd. 2, T. Skinner. *hc*, W. Webster. *c*, T. Knowles. *Cockerel.*—1 and Cup, A. Shepherd. 3 and *hc*, P. H. M'Pherson. *c*, A. Allan, Udny. *Pullets.*—1 and 2, A. Shepherd. 3, W. Meff. *hc*, T. Skinner.

COCHIN-CHINA.—*Cock.*—1, A. Barnett, Montrose. 2, H. Stephen. 3, E. Fearon, *hc*, H. Stephenson. *c*, Mrs. Hendrie, Inverness. *Hens or Pullets.*—1 and Cup, W. Meff. 2, E. Fearon. 3, H. White, Airlie, Kerriemuir. *hc*, H. Stephen.

BRAHMAS.—1 and Cup, Mrs. Hunter, Tillery. 2, Dr. Wilson, Oldmeldrum. 3, J. Waddell, Airdrie. *hc*, W. D. Fordyce; R. Brownlie, Kirkcaldy; H. White; J. Mackie, Ellon. *c*, Mrs. Keith, Aberdeen. *Hens or Pullets.*—1, T. Raines. 2, E. Fearon. 3, Mrs. Hunter. *hc*, Mrs. M'Donald *c*, R. Brownlie.

HOUDANS.—1, J. Mackie. 2, Mrs. Bain, Ferryhill Lodge, Aberdeen. 3, J. Logan, Eastsbield, Carnwath. *hc*, A. Robertson, Carnoustie. *c*, M. Elphinstone, New Pitsligo. *Hens.*—1, J. Logan. 2, J. Mackie. 3, M. Elphinstone, *hc*, Mrs. Bain.

HAMBURGHS (Gold or Silver-pencilled).—*Cocks.*—1, R Mellis, Newhills. 2, A. Sutherland, Aberdeen. 3, G. Laing, Persley, Aberdeen. *hc*, P. Campbell, Oldwhat. *c*, Mrs. Chalmers, Halyburton, by Coupar Angus; G. Campbell, Tillinamolt, New Pitsligo. *Hens.*—1 and Cup, G. Laing, Aberdeen. 2, T. Knowles, 3, R. Dickson, Selkirk. *c*, P. Campbell; Miss E. Taylor, Fichnie, Kinellar, Blackburn.

HAMBURGHS (Gold or Silver-spangled).—*Cocks.*—1, E. Robinson, Craigeloan, Airdrie. 2, R. Dickson. 3, W. Smart, Aberdeen. *hc*, J. Thom; J. Taylor, Montrose. *c*, E. Robinson; W. Mearns. *Hens.*—1 and 2, J. M. Campbell. 3, R. Dickson. *c*, W. Mearns.

GAME (Black-breasted Red).—*Cocks.*—1, W. Meldrum, Forfar. 2, C. Jamieson. 3, J. Thom. *hc*, J. Scott, Broughty Ferry. *Hens.*—1, J. Dick. 2, D. Harley. 3, J. Henderson. *hc* and *c*, C. Jamieson.

GAME (Any other variety).—*Cocks.*—1, D. Harley. 2, J. Waddell. 3, A. Dewar, Aberdeen. *hc*, J. Logan. *c*, W. Hendry. *Hens.*—1 and Cup, W. Hendry. 2, J. Waddell. 3, D. Harley. *hc*, J. Dewar. *c*, W. Meff.

ANY OTHER VARIETY.—1, Miss D. Fordyce. 2 and *hc*, Mrs. M. Anderson. 3, J. Logan.

GAME BANTAMS.—*Cocks.*—1, G. Todd, Sunderland. 2, Miss J. M. Frew, Kirkcaldy. 3, J. Dick. *hc*, J. Scott, Broughty Ferry. *c*, A. Johnstone, Bathgate. *Hens.*—1 and Cup, T. Raines. 2, J. Dick. 3, R. Brownlie, Kirkcaldy. *hc*, A. Sutherland, Aberdeen. *c*, A. Frew.

BANTAMS.—1, Miss R. C. Frew. 2, J. Waddell, Airdriehill. 3, T. Watson, Bridge of Earn. *hc*, J. Marshall (2); A. Johnstone.

DUCKS.—*Aylesbury.*—1, S. Ford, Huntley. 2, J. Mitchell, Blackburn. 3, J. Logan. *hc*, A. Cowie. *Any other Variety.*—1 and *hc*, W. M'Knight. 2, H. Stephenson. 3, A. Valentine, Blackburn. *c*, A. Cowie.

TURKEYS.—1 and *hc*, W. Auld. 2 and 3, Mrs. D. Fordyce, Brucklay.

GEESE.—1 and 2, J. Logan. 3, H. Stephenson. *hc*, Mrs. Hunter.

SELLING CLASS.—1, E. Fearon. 2, P. H. M'Pherson. 3, W. Snowie. *hc*, H. Stephenson; W. Fraser, Aberdeen: W. D. Fordyce; W. Snowie; W. Meff.

PIGEONS.

POUTERS.—*Blue Pied.*—*Cocks.*—1 and 2, W. Meff, Aberdeen. 3, J. White, Aberdeen. *hc*. W. Hendry, Aberdeen. *Hens.*—1 and 2, W. Meff. 3, W. Hendry.

POUTERS.—*Black Pied.*—*Cocks.*—1, G. Schaschke, Aberdeen. *Hens.*—1, G. Schaschke. 2, W. Meff.

POUTERS.—*Red or Yellow Pied.*—*Cocks.*—1, J. Cowe, Aberdeen. *Hens.*—1, W. Hendry.

POUTERS.—*White.*—*Cocks.*—1, J. White. 2 and 3, W. Hendry. *Hens.*—1 and Medal, J. White. 2, G. Schaschke. 3, W. Hendry.

POUTERS.—*Any other Colour.—Cocks.*—1, F. M'Crae, Aberdeen. 2 and 3, W. Hendry. *Hens.*—1 and 2, J. Tough, Aberdeen. 3, W. Hendry. *hc*, F. M'Crae.
POUTERS.—*Any other Colour.—Cockerels.*—1 and Medal, W. Meff. 2, J. White. 3, F. M'Rae. *hc*, J. White. *Pullets.*—1, W. Meff. 2, J. White. 3, F. M'Rae.
CARRIER.—*Cocks.*—1, 3, and Medal, G. Schaschke. 2, W. Hendry. *Hens.*—1 and 2, G. Schaschke.
TUMBLERS.—*Short-faced.*—1, J. White. *Common.*—1, F. M'Crae. 2 and 3, J. Cowe.
BARBS.—*Black or Dun.*—1, 2, and 3, W. Meff. *Any other Colour.*—1, 2, and 3, W. Meff.
FANTAILS.—1 and 2, W. Symon, Tullich, Dufftown. 3 and *hc*, J. R. Michie, Stoneywood.
JACOBINS.—1, J. White. 2, W. Meff. 3, J. Cowe.
TRUMPETERS.—1, 2, and 3, W. Meff.
TURBITS.—1, J. Tough.
OWLS.—1, W. Hendry. 2, J. Taylor, Montrose.
NUNS.—1 and 2, W. Symon. 3, W. Meff.
DRAGOONS.—1 and 3, W. Hendry. 2, W. Meff. *hc*, J. White; W. Meff. *c*, J. White.
ANY OTHER VARIETY.—1, 3, and Medal, W. Hendry. 2, J. Cowe. *c*, A. Cowie.
SELLING CLASS.—1, W. Hendry. 2 and 3, W. Meff.

JUDGES.—*Poultry:* Mr. Alexander Paterson, Airdrie; *Pigeons:* Mr. J. Millar, Glasgow.

THE ARCHANGEL.

THIS variety of domesticated Pigeon is not one of the general favourites amongst fanciers; indeed, there are but few who have paid especial attention to its culture, consequently it is not usually seen in this country.

Archangels are not attractive either in colour or habits, and from the casual observer probably no word of praise would be elicited, yet they are a meritorious breed of Pigeon.

Their colour is sombre and unattractive; their shape and peculiarities differ somewhat from other breeds, and in many ways they are dissimilar to others more numerous about us; they are naturally very shy and wild, and this in some degree may account for their being disregarded as "pets."

It is a matter of considerable doubt and speculation when the breed was first imported into Great Britain, and from whence it came. These Pigeons are supposed to be natives of Russia, and have been designated Archangel from the fact of the breed being found in great numbers at that Russian seaport. It is certain that Russia and Germany are accredited with having the Archangel in far greater numbers than ourselves, and in Russia we believe the breed was originally propagated.

The Archangel, as we have said, is not particularly attractive in appearance, but its beauties, as we become familiar with the birds, and as we see them in various positions moving about in the bright sunlight, increase our admiration of them more and more. Archangels, in size and general outline, much resemble the Rock Dove; the head is somewhat of the same form, though the beak has not quite so much of the "spindle" character, and, like the Rock Dove, the Archangel when caged displays that wild uneasy disposition so characteristic of all birds not accustomed to close confinement.

Archangels, though wild and shy naturally, are easily tamed by the common usage of the aviary or dovecote, and when in association with many bold little companions, their retiring disposition is not then so noticeable, as they gradually adopt the habits of their fellows, although they rarely become so tractable as most others; and if proper nesting places are arranged for their use in dark secluded corners they will thrive, breed well, rear well, and live at ease and contentment.

Few words will suffice for detailing the points and peculiarities of this breed. The birds are of moderate size, and though not possessing symmetry of form in a marked degree, still they are not at all ungraceful in appearance. Their body is usually carried in a horizontal position, though the balance is well sustained, and the head inclines a little forward. They are easy in their movements on foot, and rapid in their flight. Their wings are large, the secondary flights being more prominent than usually seen in most other varieties. The head of the bird is narrow, possessing a crest or peak, rising from the back of the skull in continuation of the line of neck, and terminating in a perfect point, inclining forwards. The beak is rather thin, dark-coloured, and somewhat doveshaped. The wart, wattle, or nostril cover is small, smooth, and rather

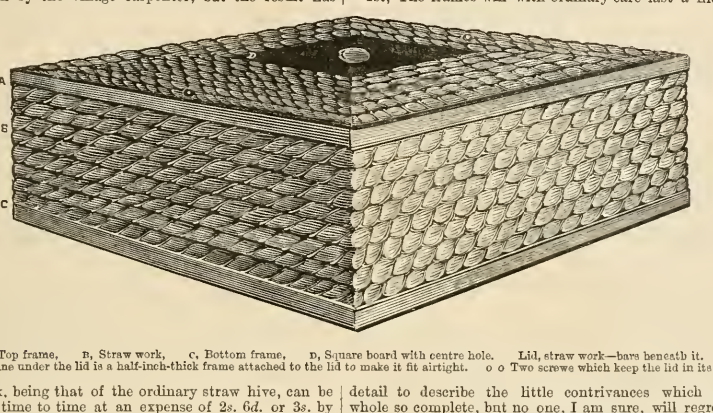
flattened. The eye should be of a red colour, but many splendid specimens have come under our notice having pearl eyes; the red, however, is far preferable, being more in unison with the general colour of the bird. The upper part of the neck is narrow; the breast full, though not too prominent; the shoulders wide, but closely fitting to the body, and not outspread at their sockets. The colour of the birds in a subdued light is a sombre unattractive black; the head, neck, breast, and thighs a reddish chocolate-colour. But in a bright light and under the influence of the sun's beams, this Pigeon becomes all aglow; its sober garb is illumined with varied and brilliantly shining colours from head to tail, from beak to thigh. This chameleon-like peculiarity is an important feature in the breed, and is absolutely necessary in a matured and perfect bird. The head, neck, breast, belly, and thighs as far as the vent, should be of a rich dark coppery bronze; the back, tail, sides of wings, and flight should be black and enlivened by iridescent hues. It is in a strong light that the real colour-merit of the specimen is fully realised.

The young of the Archangel at first are much lighter in colour throughout, but as they pass through each successive moult the richer and more conspicuous does their colouring become. A mistake too often made is to discard young stock too soon—and this remark fanciers of all kinds would do well to consider; therefore our warning is, Do not condemn them at an early period of their existence, see them at least through their first moult; and if then they are not of a bluish tinge or dappled upon their wings, do not condemn them nor hasten their doom; give them time for nature to crop out.—Birmingham Columbarian Society—J. W. Ludlow, *Secretary*.

SHERRINGTON BAR HIVE.

Since the time when Mr. Golding said "Without bars there is something wanting, something wrong," everyone must have desired a bar hive. I have used for some time frames let into round straw hives, somewhat after Mr. Taylor's plan, made cheaply enough by the village carpenter, but the result has not been satisfactory, in that the bars of one hive would not always fit the nitches of another. I have, therefore, schemed a square straw bar hive, and I am glad to be able to recommend it, as combining three great advantages.

1st, The frames will with ordinary care last a life time, and



A, Top frame, B, Straw work, C, Bottom frame, D, Square board with centre hole. Lid, straw work—bars beneath it.
The black line under the lid is a half-inch-thick frame attached to the lid to make it fit airtight. o o Two screws which keep the lid in its place.

the straw work, being that of the ordinary straw hive, can be renewed from time to time at an expense of 2*s*. 6*d*. or 3*s*. by any local worker in straw, the hive becoming indestructible.

2nd, The hives can be used in the open air as well as in a bee-house.

3rd, The price of the hive is only 10*s*.

It is impossible in a few words and without drawings in detail to describe the little contrivances which make the whole so complete, but no one, I am sure, will regret the experiment of procuring one from King & Son, Stoke Goldington, near Newport Pagnel, who make them. I hope this will help to bring bar hives within the reach of cottagers, for whose instruction alone I was some years ago induced to keep bees.—A Bee-keeper.

PAISLEY ORNITHOLOGICAL ASSOCIATION'S SHOW.

The eighteenth annual Exhibition, under the auspices of this Association, was held on the 1st and 2nd inst. in the Drill Hall. It compared favourably with previous years, both in the quality of the birds and the number of the entries. There was a remarkably fine show of *Spanish*, old and young fowls, and the first prize was well merited. The special prize was awarded for a handsome young cock bird. The first prize for a pair of Golden-pencilled *Hamburgh* hens, only five months old, was justly won. The class was an attractive feature of the Show. The *Pigeons* were very superior. The *Canary* and other bird department had numerous entries. The prizes awarded were:—

Spanish.—1, J. Dunlop, Paisley. 2, Miss Hodgart, Paisley. 3, A. Yuill Airdrie. 4, G. Archibald, Paisley. *Chickens.*—1, A. Robertson, Kilmarnock. 2, H. L. Horne, Whiteriggs, Airdrie. 3, A. Yuill. 4, W. C. Hardie, Carron. *Hens.*—1, H. L. Horne. 2 and 3, R. Paton, Kilmarnock.

Dorkings.—*Coloured.*—1, G. G. Neilson, Glasgow. 2, Z. H. Heys, Barrhead. 3, W. Scott, Blantyre. 4, Mrs. Alston, Craighead, Hamilton. *Chickens.*—1, Z. H. Heys. 2, Mrs. Alston. 3, T. Smellie, Kilmarnock. 4, M. Henderson, Ardrossan.

Dorkings.—*White.*—1, J. Bell, Dalmellington. 2 and 4, R. Farrow, Dalmellington. 3, Mrs. W. Arnot, Dalmellington. *Hens.*—1, Mrs. Alston. 2, Z. H. Heys. 3, Miss Hodgart.

Cochin-Chinas.—1, J. Pollock, Busby. 2, T. Bruce, Busby. 3 and 4, J. Drennan, Woodhall.

Brahma Pootra.—1, Mrs. Gillison, Milngavie. 2, Mrs. Alston. 3, A. Carswell, Larbert. 4, H. L. Horne.

Scotch.—1, J. Meikleham, Hamilton. 2, R. Blair, Thornhill, Johnstone. 3, Dunlop, Broomlands, Paisley.

Hamburghs.—*Golden-spangled.*—1, A. Gibb, Ayr. 2, A. Frisken, Irvine. 3, T. Love. 4, J. Crawford, Beith. *Golden-pencilled.*—1, R. Macnab, Cardonald. 2, J. Smith, Stewarton. 3, A. Crosby, Melrose. 4, J. Howe, Paisley.

Hamburghs.—*Silver-spangled.*—1, Ashton & Booth, Mottram. 2, J. Brnce. 3, J. Moodie, Broomlands, Paisley. 4, A. Crosbie. *Silver-pencilled.*—1, A. Cannell, Stewarton. 2, J. Clark, Paisley. 3, R. F. Gemmell, Glasgow. 4, P. Barr

Hamburghs.—*Golden or Silver-spangled.—Hens.*—1, J. M. Campbell, Bonny Kelly, Van Dnr. 2, J. Moodie. 3, M. Currie, Kilpatrick. *Golden or Silver-pencilled.—Hens.*—1, Miss Taylor, Aberdeen. 2, J. Richmond, Kilmarnock. 3, Miss Hodgart.

Polands.—*Topped.*—1, R. Macnab, Cardonald. 2, W. Paterson, Airdrie. 3 and 4, A. Wylie, Johnstone.

Game.—1, D. Harley, Edinburgh. 2, W. Nelson, Johnstone. 3, J. M'Indoe, Grahamston, Barrhead. 4, Z. H. Heys. *Black Reds.*—1, S. M'Coll, Strathblane. 2, G. Williamson, Johnstone. 3, J. M'Lachlan, Charleston. 4, H. L. Horne.

Cross, or Any other Variety.—1, R. Masson. 2, W. A. Orr, Kilbirnie. 3, J. M. Wilson, Lochwinnoch. 4, W. Linton, Selkirk.

Ducks.—*Aylesbury.*—1, J. Meikleham. 2, J. Kerr, Glencart. 3, Z. H. Heys. 4, S. Hunter, Arkleston. *Rouen.*—1, W. Wilson, Johnstone. 2, M. Henderson Ardrossan. 3, A. Gray, Beith. 4, J. Meikleham.

Game Bantams.—1, J. Mitchell, Perth. 2, Gow & Walker. 3, B. M. Knox Kilbirnie. 4, T. Weir, Williamsburgh.

Bantams.—*Black.*—1 and 2, H. L. Horne. 2, S. & R. Ashton. *Any other Colour.*—1, A. Robertson. 2, J. Dunn, Galston. 3, G. W. Boothby, Loath. 4, S. & R. Ashton.

Selling Classes.—1 and 3, J. Kerr. 2, W. White, Paisley. 4, Miss J. Leitch, Cross Arthurlie.

Special Prizes.—*Spanish.—Cockerel.*—A. Robertson, Kilmarnock. *Cochin-China.*—J. Pollock, Busby. *Brahma Pootra.*—Mrs. Gillison, Milngavie. *Scotch.—Cock.*—A. Dunlop, Broomlands, Paisley. *Hamburghs.—Silver-pencilled.*—A. Connell, Stewarton. *Game.*—*Black Reds.*—S. M'Coll, Strathblane. *Game Bantams.*—Gow & Walker, Kilbarchan.

PIGEONS.

Pouters.—*Blue.*—1, J. Murray, Glasgow. 2, J. Millar, Glasgow. 3, J. Lobore, Larkhall. *Black or Red.*—1 and 2, J. Millar. 3, J. Murray. *Any other Colour.* 1, J. Murray. 2, J. Millar. 3, H. Thomson, Glasgow.

Tumblers.—*Short-faced.*—1 and 2, J. Murray. 3, J. Paton, Rigg, Stewarton *Any other Variety.*—1, J. Sharp, Johnstone. 2, W. Wilson, Johnstone. 3, W M'Kinlay, Kilmarnock.

CARRIERS.—1, G. Whyte, Ladyburn, Paisley. 2, J. Murray. 3, J. M'Rae, Kilmarnock.
FANTAILS.—1, J. Sharp. 2, J. Galt, Kilbirnie. 3, A. Crosby, Melrose.
JACOBINS.—1, J. Lobore. 2, J. B. Reynards, Helensburgh. 3, A. Yendal, Galston.
NUNS.—1, W. M'Kinlay. 2, A. Yendal. 3, T. Imrie, Ayr.
TURBITS.—1, J. G. Orr, Beith. 2, T. Smellie, jun., Kilmarnock. 3, J. Muir, Dalry.
COMMON.—1, J. M'Crae, Dalry. 2, J. G. Orr. 3, J. Kerr.
ANY OTHER VARIETY.—1 and 2, J. Murray. 3, G. White.
SELLING CLASS.—1, J. Galt. 2, G. White. 3, J. Moodie.
SPECIAL PRIZES.—*Fowls*, *Ducks*.—J. Murray, Glasgow. *Black* or *Red*.—J. Millar, Glasgow.

CANARIES.

CLEAR.—1, M. Barr, Paisley. 2, R. White, Paisley. 3, D. Halden.
YELLOW—*Cock*.—1, A. Cumming, Rutherglen. 2, W. Wright, Greenock. 3, D. Dick, Kilmarnock. 4, J. M'Pherson, Paisley. *Hens*.—1, T. Fernie, Paisley. 2, J. M'Allister, Glasgow. 3, J. M'Cabe, Kilwinning. 4, J. Wilson, Beith.
BUFF.—*Cock*.—1, H. Pinkerton, Rutherglen. 2, J. Dalziel, Paisley. 3, J. Pettigrew, Carluke. 4, J. Stevenwright, Partick. *Hens*.—1, M. Todd, Paisley. 2, J. M'Lean, Greenock. 3, W. Love. 4, R. Houston, Kilbirnie.
PIEBALDS.—1, Miss M. Houston, Paisley. 2, H. Johnstone, Johnstone. 3, J. M'William, Den, Dalry.
PIEBALD.—*Yellow*.—*Cocks*.—1, J. Pettigrew, Carluke. 2, J. Allison, Paisley. 3, A. Wilson, Greenock. 4, C. Aird, Kilmarnock. *Hens*.—1, J. Scoullar, Kilmarnock. 2, T. Scott, Carluke. 3, J. Pettigrew. 4, R. Houston.
PIEBALD.—*Buff*.—*Cocks*.—1, A. Kelly. 2, T. Scott, Carluke. 3, J. Pettigrew. 5, J. Glasgow, Beith. *Hens*.—1, W. Hunter, M.D., Kilbirnie. 2, A. Crawford, Johnstone. 3, A Kelly. 4, G. Drummond, Renton.
GOLDFINCH MULES.—1, G. Gendie, Ayr. 2, Miss J. Paterson, Airdrie.
GOLDFINCHES.—1, T. Conn, Kilwinning. 2, A. Mitchell, Stewarton.
PARAQUET.—*Home or Foreign*.—1, J. Campbell, Greenock. 2, W. Brown, Kilmarnock.

JUDGES.—*Poultry* : Messrs. W. R. Farquhar, Alexandria ; R. Calderwood, Kilmarnock ; J. M'Lachlan, Paisley ; J. Sharp, Johnstone ; J. Steven, M.D., Ardrossan ; C. Johnstone, Barrhead. *Pigeons* : Messrs. J. H. Fram, Overton, Carluke ; J. Cochran, Glasgow. *Small Birds* : Messrs. J. Fulton, Beith ; J. Lyle, Wishaw ; W. Taylor, Glasgow ; A. Mitchel, Paisley ; J. Gibson, Paisley ; W. Weir, Paisley.

OUR LETTER BOX.

BIRMINGHAM COLUMBARIAN SOCIETY'S SHOW.—"Your reporter, speaking of this Show, says the young Carriers of 1871 were a good class, and the cup bird at Birmingham received but a high commendation. This is a great mistake, for my bird was not there.—W. SIDDONS."

[We have another note on the same subject from Mr. Nightingale, which we cannot publish.]

DIARRHŒA IN FOWLS (*C. H.*).—Try some bread soaked in strong ale, and give no water. Withhold all green food and meat. If this does not make a difference you must give a tablespoonful of castor oil; indeed, if the bird is not weakened by diarrhœa we should begin with the oil. We believe the disorder is caused by some irritating substance that has been swallowed, and cannot be got rid of by ordinary means. After the oil give bread soaked in ale, and no other food for two days.

BASKETS FOR SENDING POULTRY BY RAIL (*A. A.*).—You need only have round wicker baskets made, and cover them with canvas instead of a lid. The height and diameter must be regulated by the number and size of the fowls you wish to send. The basket should be high enough for the cock to stand up without touching the top with his head. You should have no difficulty in having such made, but if you have, apply to Baily in Mount Street.

FOWLS' ROOSTING-PLACE (*A. C. C. H.*).—As a rule, you may safely allow your fowls to choose their own roosting-place, and if they are healthy we do not see why you should interfere with them. If the place they prefer is well protected overhead from snow and rain, and beneath from draught and wind, their choice is not a bad one. Let them have access to their house if they desire it, and they have instinct enough to use it if necessary.

DUCKS (*Anas*).—No; but for security's sake separate them now. They are not early layers, but it is time the intended breeders should be sorted and separated. A *mealliance* is often the loss of a season.

"ORNAMENTAL WATERFOWL (*Sussex*).—At present Carolinas, Mandarins, and Ruddy Shell Drakes; later in the year all the different sorts of wild fowl. Before advising you we should know the locality. Is the water fenced round? Is there a stream near? How large is the water? Are there any islands? Baily in Mount Street will supply you with a priced list.

CHINESE FOWLS (*G. C. A.*).—Your description is not sufficiently definite. They might be Black Cochins but for the tuft of feathers on the cock's head and the black legs of the pullets. What are their combs—single, double, or pea? All Oriental fowls lay yellow eggs. Tell us more about them.

POINTS OF LIGHT BRAHMAS (*A. A.*).—A Light Brahma pullet should have a whitish body with a striped hackle, and black tail and flights. The cock should have white plumage, a black flight and tail, striped hackle, and marked saddle. Both should have pea combs and well-feathered yellow legs. There should be no vulture hock in either of them.

CANARIES (*H. G.*).—Brent's is the best authority. The other book is of another age. We know of no others.

SISKINS (*A Northumbrian*).—Siskins are not judged by any particular points other than brilliancy and condition of plumage.—W. A. BLAKSTON.

SEED (*R. E. H.*).—The sample appears like mustard seed, and certainly not the food I should recommend for Canaries.—W. A. BLAKSTON.

CANARY MULE-BREEDING (*A Beginner*).—Try the Goldfinch and Canary hen A fresh-caught bird will breed this season, but he will not be in trim earlier than May. Put up a Bullfinch hen and Goldfinch, and cultivate patience. You will need it.—W. A. BLAKSTON.

CANARY CHARACTERISTICS (*G. G.*).—I know of no book such as you require. Apart from a detailed list of points (on the distribution of which for subsequent collection into an aggregate much diversity of opinion exists), what is wanted is a series of life-like illustrations, faithful copies of known celebrities, drawn not only with scrupulous regard to detail, but in an artistic style. Wood engravings, such as the Pigeons which appear in these pages from the clever pencil of Mr. Ludlow, would be a great advance on anything which has hitherto been done for the Canary, though I aspire to seeing him placed on a level with coloured plates.—W. A. BLAKSTON.

POISONOUS SCARLET DYE (*A Constant Subscriber*).—We do not think that any scarlet-dyed stockings would paralyse the feet wearing them. The dye might irritate the skin, but we think that would be prevented by thoroughly rinsing the stockings in water before wearing them.

WORMS (*A Poultry Farmer*).—We never heard of any mode of "raising and keeping up a perpetual supply of worms." The Bohemian system must refer to breeding maggots in carrion.

METEOROLOGICAL OBSERVATIONS,

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude 111 feet.

DATE. 1872. Jan.	A.M. Barometer at 32° and Sea Level.	A.M. Hygrometer. Dry.	A.M. Hygrometer. Wet.	A.M. Direction of Wind.	A.M. Temp. of Soil at 1 ft.	IN THE DAY. Shade Temperature. Max.	IN THE DAY. Shade Temperature. Min.	IN THE DAY. Radiation Temperatures. In sun.	IN THE DAY. Radiation Temperatures. On grass	Rain.
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 2	29.933	38 5	37.8	S.W.	40.4	45.8	33.4	65.2	30 1	0.150
Th. 4	29.423	45 0	43.6	W.S.W.	40.5	47.6	37.2	67.8	32.0	0.230
Fri. 6	29. 21	47.4	44 4	S.W.	41.2	50.0	41.8	75.1	39.7	0.280
Sat. 6	29.592	40 5	38.7	S.	41.8	48.1	36.0	58.2	31.4	0.470
Sun. 7	29.559	37 8	37.2	S.W.	40.4	44.0	36.4	62 8	31.8	0.060
Mo. 8	29 270	34.3	33.2	W.	40 8	41.1	32.2	66.5	29 7	0.050
Tu. 9	29.525	34.7	33.7	N.W.	39.2	41.9	32.6	68.3	30.2	—
Means	29.475	39.7	38.8		40 5	45.5	35.5	67.1	32.1	1.220

REMARKS

3rd.—Slight white frost, and rather hazy at 8 A.M., fine all day, but still damp. Gale at night.

4th.—Wet and windy early, but cleared up by 9 A.M., fine till 4.30 P.M., windy with heavy rain during the night. Barometer falling very rapidly till midnight.

5th.—Windy till 9 A.M., when it moderated and the rain ceased, fine day but wet evening and night, lightning at 9.30 P.M.

6th.—Dry and fine, rather windy, heavy shower with hail at 0.30 P.M., showery during the remainder of the day.

7th.—Wet early, fair though cold from 10 A.M. to 8.30 P.M., then rain.

8th.—Fine and frosty early, and moderately fine all day, at some times beautifully sunny and bright.

9th.—Very dark, though not either foggy or wet at 8 A.M., but cleared off rapidly and soon became very fine, rain between 4 and 5 P.M.

Although the temperature and pressure have been lower, and the rainfall greater than in the previous week, there has been warm sun on several days.—G. J. SYMONS.

COVENT GARDEN MARKET.—JANUARY 10.

WE have not much change to notice here. The general features of the market denote very limited sales, and a large supply of out-door produce keeps the prices from advancing. Sea-kale, A-sparagus, Dwarf Kidney Beans, and Cucumbers are ample for all comers. Continental produce is limited generally to salading, as far as green vegetables are concerned, with the exception of a small consignment of Asparagus.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....½ sieve	2	0	to 4	0	Mulberries.....lb.	0	0	to 0	0
Apricots.....doz.	0	0	0	0	Nectarines.....doz.	0	0	6	0
Cherries.....lb.	0	0	0	0	Oranges.....₱100	4	0	10	0
Chestnuts.....bushel	10	0	20	0	Peaches.....doz.	0	0	0	0
Currants.....½ sieve	0	0	0	0	Pears, kitchen.....doz.	2	0	4	0
Black.....do.	0	0	0	0	dessert.....doz.	3	0	8	0
Figs.....doz.	0	0	0	0	Pine Apples.....lb.	4	0	7	0
Filberts.....lb.	0	6	1	0	Plums.....½ sieve	0	0	0	0
Cobs.....lb.	0	6	1	0	Raspberries.....lb.	0	0	0	0
Grapes, Hothouse.....lb.	4	0	8	0	Strawberries.....lb.	0	0	0	0
Gooseberries.....quart	0	0	0	0	Quinces.....doz.	0	0	0	0
Lemons.....₱100	7	0	10	0	Walnuts.....bushel	10	0	25	0
Melons.....each	2	0	3	0	ditto.....₱100	1	0	2	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes.....doz.	0	0	to 0	0	Leeks.....bunch	0	3	to 0	9
Asparagus.....₱100.	5	0	8	0	Lettuce.....doz.	1	0	2	0
Beans, Kidney.....per 100	3	0	4	0	Mushrooms.....pottle	1	6	2	6
Bread.....bushel	0	0	0	0	Mustard & Cress..punnet	0	2	0	9
Beet, Red.....doz.	1	0	3	0	Onions.....bushel	2	0	4	0
Broccoli.....bundle	0	9	1	6	pickling.....quart	0	6	0	8
Brussels Sprouts..½ sieve	2	0	3	0	Parsley per doz. bunches	2	0	4	0
Cabbage.....doz.	1	0	1	6	Parsnips.....doz.	0	9	1	0
Capsicums.....quart	0	0	0	0	Peas.....quart	0	0	0	0
Carrots.....bunch	0	6	0	0	Potatoes.....bushel	2	0	3	6
Cauliflower.....doz.	3	0	6	0	Kidney.....do.	3	0	6	0
Celery.....bundle	1	6	2	0	Radishes..doz. bunches	0	6	1	0
Coleworts..doz. bunches	2	0	4	0	Rhubarb.....bundle	1	0	1	6
Cucumbers.....each	1	0	2	0	Savoys.....doz.	1	0	1	6
pickling.....doz.	0	0	0	0	Sea-kale.....basket	1	6	2	6
Endive.....doz.	2	0	0	0	Shallots.....lb.	0	6	0	2
Fennel.....bunch	0	3	0	0	Spinach.....bushel	3	0	4	0
Garlic.....lb.	0	2	0	0	Tomatoes.....doz.	0	0	0	0
Herbs.....bunch	0	3	0	0	Turnips.....bunch	0	3	0	6
Horseradish.....bundle	2	0	4	0	Vegetable Marrows..doz.	0	0	0	0

POULTRY MARKET.—JANUARY 10.

THE market has at last seen the end of Christmas. After the rush of goods there is a cessation. Sellers as well as buyers are carried away by a spirit of Christmas, and as Paterfamilias will at that time deliberately justify an expenditure that at any other time he would deem the height of extravagance, so senders send all they can under the influence of the excitement: hence a factitious scarcity. We will begin our quotations next week.

WEEKLY CALENDAR.

Day of Month	Day of Week	JANUARY 18—24, 1872.	Average Temperature near London.			Rain in 43 years.	Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	Days.	m. h.	m. h.	m. h.	m. h.	Days.	m. s.	
18	Th		42.6	31.3	36.9	18	59 af 7	22 af 4	48 af 11	6 af 1	8	10 34	18
19	F	Twilight ends 6.25 P.M.	43.1	30.6	36.9	20	58 7	24 4	after.	17 2	9	10 53	19
20	S		42.4	30.6	36.5	15	57 7	25 4	30 0	27 3	10	11 11	20
21	Sun	3 Sunday after Epiphany.	42.9	32.0	37.5	20	56 7	27 4	57 0	35 4	11	11 29	21
22	M		43.1	32.3	37.7	18	55 7	29 4	33 1	39 5	12	11 45	22
23	Tu		42.6	32.4	37.5	18	54 7	31 4	19 2	36 6	13	12 1	23
24	W		43.1	32.1	37.6	19	53 7	33 4	11 3	25 7	14	12 16	24

From observations taken near London during forty-three years, the average day temperature of the week is 42.8°; and its night temperature 31.6°. The greatest heat was 68°, on the 19th, 1828; and the lowest cold 4½° below zero, on the 19th, 1838. The greatest fall of rain was 0.90 inch.

CUCUMBER AND MELON CULTURE.

AN important consideration in most gardens is how to insure a supply of these for the longest time; and, indeed, where proper accommodation is afforded, the first-named can readily be obtained in every month of the year. The form of the structures in which they are grown is of primary importance, and of these ordinary garden frames with moveable lights do very well for summer work, but for early and late supplies they are altogether out of the question. I have had a good deal of experience in this matter, and would unhesitatingly recommend the half-span form of house as being the most useful and best adapted for our purpose. Those at Loxford Hall are of this form, 11 feet wide, and 10 feet from the path to apex of the roof, with front sashes made to open outwards. All the top lights slide, all the back lights are fixed, and ventilators are placed in the back wall. The beds are 5 feet wide, and receive bottom heat from two rows of 3-inch pipes. The internal atmosphere of the house is warmed by four rows of 4-inch pipes, with which we maintain during severe frost a night temperature of 65°, without overheating the pipes or using any outside covering.

Our supply of Cucumbers from Christmas onwards is obtained from plants sown or raised from cuttings early in September. These grow on until they fairly cover the trellis, but they do not bear until the days lengthen, when they commence to fruit and continue to do so until Christmas comes round again. The old shoots must, of course, be thinned-out, and young fruitful ones allowed to replace them, and rich surface-dressings must be given when the plants show signs of exhaustion. I do not know a better variety to afford a continuous supply than that known as Rollisson's Telegraph. I have grown Dale's Conqueror, Hamilton's Invincible, Pearson's Long Gun, and Blue Gown, and have obtained handsome fruit from them; but these, though certainly very showy and well adapted for exhibition, do not keep up a supply all the year round in the way that Telegraph does. Of course it is not necessary to grow Cucumbers in such a house as this during the summer and early autumn months, if dung frames are available, as a three-light frame will help to bring forth sufficient for a very large family. The houses may be used for growing Melons. These, I think, do much better in a house of this description than in frames, the fruit being at all times of better quality. The first lot of Melon seeds should be sown early in January, and under favourable circumstances fruit may be expected from them early in May. Should, however, cold cloudy weather intervene early in the year, it is uphill work for the young Melon plants, and under such circumstances I have had those sown a month later come in as early as those sown first. The details of culture may be summed-up in a few words, and is the same in each case. From the brickbats, which are placed over the hot-water pipes for bottom heat, to the surface of the bed, the depth is 1 foot 6 inches; and over the brickbats there is first placed a layer of turf with the grass side under to prevent the compost mixing with the substratum, and thus filling up the air spaces. Only half the border is filled up at first, and a wall of turf erected parallel with the path serves to keep the compost in its place. The other half of the bed is filled with fermenting material, which not only warms the compost, but creates a gentle bottom heat, and by so doing gives an excellent opportunity for raising young Melon plants or Vines from eyes, striking cuttings, and many other purposes. I generally sow about a dozen Melon seeds in a 5-inch pot, and as soon as the young seedlings are sufficiently strong—that is, when the two seed leaves have grown to their full size—pot them off, one each in the centre of a 5-inch pot, and keep them in the bottom heat until they are ready for planting-out. The bed will by this time be well warmed and ready to receive the plants. Place them about 15 inches from the front wall, putting a stick by each plant to which to train them until they reach the trellis. The material and form of this latter is important.

I know a range of most excellent Melon and Cucumber houses which were built regardless of expense on the most modern principles; one fault only was apparent to me on seeing them, and that was in the trellis employed to train the plants to. This consisted of a series of wooden frames which were made so that they could be fixed at 9, 11, 13, or 15 inches from the glass. This was so far right, but the fault lay in using laths an inch wide, fixed in a longitudinal direction with others crossing them at 6 inches apart, which I fancy very much obscured the light so deficient in January and February. Here we use the same sort of moveable frames, except that stout wire is used instead of laths, and the trellis is moved close to the glass in winter, and withdrawn to the furthest point in the summer months.

When the young plants reach the trellis, the leading shoot is not stopped, but trained up until it is about 1 foot 6 inches from the top of the trellis, when the point should be pinched-out. Side shoots will form rapidly after this, on most of which will be one or two female flowers, and when four or six of them are open at one time the pollen of the male flowers should be applied to them. This is essential, because if one or two flowers are set before others that are three or four days in advance in point of development, those which are set will take the lead, whilst the others will fail to make satisfactory progress. As soon as the young Melon plants are pinched, the fermenting material should be removed, and its place supplied with suitable compost. Cucumbers are treated in the same way as soon as they reach the top of the trellis.

Melons managed on this plan seldom canker close to the surface of the bed when the fruit is on the point of ripening; and most growers know the trouble they have with them from this cause if trained to the surface of the beds. When the plants are attacked by this pest, dry freshly-slaked lime should be applied to the affected parts immediately, and will arrest it. The Cucumber disease mentioned by Mr. R. Fish and others has not, I am truly

thankful to say, appeared in this locality as far as I am aware.

In houses such as I have described a stage is fixed in a space at the back, which should always be occupied with a varied assortment of useful plants. Ours is used for pot Vines, Figs, and Oranges grown for dessert, of which the Tangerine, St. Michael's, and Maltese Blood are the best. I am now gathering the last-named two, and am told that the flavour is distinct and very superior. They require much heat to ripen them, and if the fruit is set in March, the plants must be continued in the temperature of the Cucumber house until Christmas, when it will be ripe.

Tomatoes in pots are also grown on these back stages. Sown about the first day in February their fruit will be ripe about the end of May. They are grown in 12-inch pots in a compost of turfy loam and pulverised bones, and when the proper sorts are chosen it is astonishing what a large crop a pot of this size will carry. Six pots of them are sufficient for my employer's family, and a margin is also left to give away to friends. When growing they require much water at the roots and syringing freely overhead twice a-day. Orangefield Dwarf Prolific is the best I have yet tried for pot-culture. Hepper's Goliath I tried last year. It is said to be similar to the American variety Trophy, but as it grows too tall and carries a crop of very small fruit with one of immense size, it is discarded for pot-culture. Earley's Defiance promises to be an excellent variety for pot-culture. It is said to be fully two weeks earlier than any other kind, and the fruit is large, nearly round, and contains a large proportion of pulp. Gardeners who compete in collections of vegetables early in June will find a good dish of Tomatoes a strong point in their favour.—J. Douglas.

OLD PEARS UNDER NEW NAMES.

BROCKWORTH PARK.

Mr. Rivers seems aggrieved because we have in our advertisements attached our name to the valuable Pear we discovered at Brockworth Park. He says it is pomologically incorrect to do so, until it is proved to be a seedling. Mr. Rivers is an authority, we bow to his decision, and express our regret at having transgressed pomological laws. In our catalogue we call it simply Brockworth Park (without our name), and in future we will do so in every instance.

The important question, however, remains—Is it a new variety, or an old one under a new name? We have known of the original tree some four or five years, and each year have tasted the fruit. During this time we have made inquiry as to its history, and hear that it was received from Cheltenham witot hua name. Mr. Anthony Bubb, of Witcomb Court (the agent to the Brockworth Park estate), knows Pears well, and has a good collection, but he does not know any name for this Pear, although he kuows the tree, and we believe had something to do with planting it. It has been exhibited two years consecutively at the Royal Horticultural Society's Fruit Shows, receiving a first-class certificate in September, 1870 (last October at the International in competition with hundreds, if not thousands of dishes of Pears, both continental and English, and no one could recognise it, though very critical and knowing eyes surveyed it). We believe it was utterly unknown in commerce at the time we brought it out. It bears more resemblance to Louise Bonne of Jersey than to any other sort, but is much larger and handsomer than that variety; it has every appearance of being a cross between it and Williams's Bon Chrètien, but this is only surmise. We can only say, he would be a very rash man who would attempt to palm off an old Pear under a new name before such men as Dr. Hogg, Mr. Barron, and the Fruit Committee of the Royal Horticultural Society.—J. C. Wheeler & Son.

ESTIMATE OF STRAWBERRIES.

As "J. G." desires a few words I will endeavour to gratify his wishes. I am surprised to hear the account he gives of Dr. Hogg. In the chalky land at Rushton and in the strong sandy loam here I have always found the plants do well and crop well. The crop of this Strawberry, and indeed of all the sorts I keep—namely, Rivers's Eliza, Dr. Hogg, Mr. Radclyffe, Wonderful, and Galande, Red Alpine, were grand last season. Cockscomb, the only other Strawberry here, was kept from bearing last year in order to afford early runners. The runners of this and Eliza were planted July 7th, and are now fine plants with several crowns each. "J. G." would find Trollope's Victoria, Empress Eugénie, and Marguerite good useful sorts, which will do well with Eliza, Eclipse, Sir J. Paxton, Cockscomb, and Wonderful.

I should think the above would succeed well in all lands; and, if properly planted in July and well looked after, would overburden "J. G." with fruit. Cockscomb sets every flower, is very large, hangs a long time witnout injury, is Pine-flavoured, but not very good in its colour. Wonderful is very hardy, an immense cropper, Pine-flavoured, colours well except at its points. To effect this the leaves must be penned back. It is one of the best for jam, being so firm after cooking.

Much fuss has been made about Vicomtesse Héricart de Thury; it is the same as Marquise de la Tour Maubourg and Duchesse Trévisse. They were all raised by Jamain and Durand. I had it under the second name. It is a good plant, and the fruit is of a nice crimson colour and of good flavour, but it is not so good nor so much to be relied upon as Rivers's Eliza. The British Queen likes strong irony clay that requires a pickaxe to break it up. La Constante does well in the same stiff clay land. It is hardy as regards cold, but burns in light land, and the crop gets stewed. It is a tufted (the same form of plant as Eliza), dwarf-habited plant. The form of the plant and the form and flavour of the berries are first-rate; moreover, its flavour is quite distinct. Mr. Radclyffe is like the British Queen in leaf and flavour; but it is much hardier, does well in chalky soil (the British Queen likes iron but not chalk), and also in sandy loam, and bears well here. In the last most severe winter I gave my plants of it no mulching whatever. The leaves were less affected by the frost than any other Strawberry here. The others were all mulched.

As regards mulching, beware of excluding air from the crowns for any length of time. A little loose straw put over them during the intensity of the frost may be of service, but it must be removed as soon as the frost is over, or the crowns will be softened. For the many years I have had Rivers's Eliza I have never known it fail.—W. F. Radclyffe.

GREEN PEAS.

I am venturing on a *vexata quæstio* when I touch upon the subject of new Peas, there are so many and such conflicting accounts. New sorts come out with such an unmistakeable character, and are so guaranteed to be good, that it seems to be downright heresy afterwards to question them, while one must expect charges of "not knowing anything at all about it," &c., from those from whom one differs; but as dear old Lord Pam once said to Spring Rice, "You ought, if you want to be a public man, grow a rhinoceros hide." My cuticle has become so hardened that it will take a good thick birch of pea haulm, by whomsoever administered, to raise a blister, and so I must have my say.

Now first of all with regard to earliness. Some one said he had made a computation of the statements made on this point, and that there ought to be no difficulty in having them by the first week in April. Now I must confess this is a point about which I am tolerably indifferent—that is, I do not care to meet my neighbour, the Rev. Smith, and say, "Had any green Peas yet?" "No." "Dear me! what a muff your man must be; I had a dish three days ago." If I can get them in tolerably early time a few days make but little difference to me, and thus a recommendation of three or four days in a new variety is of no moment, especially when one recollects how much soil, situation, the very time of putting in the seed, whether it be favourable or not, and climatic influences, will affect Peas in this point.

Then with regard to what constitutes the real value of a Pea. We must place—at least I would—flavour first and productiveness afterwards. In a large establishment, where the servants' hall has to be considered quite as much if not more than the dining-room, and Jeames is often more particular as to the amount of his provisions than his master, of course productiveness is a great element to be considered, and a Pea like the Cook's Favourite will doubtless win fame with all gardeners whose circumstances require them to furnish large quantities of vegetables, but where flavour is considered it will hold a low place.

New Peas are derivable from two sources—those which are really and genuinely sent, the results of careful hybridising and patient skill, and those which are merely selected strains of some well-known variety, which has been carefully grown on good soil, and then by constant selection improved. Take, for example, Daniel O'Rourke; under how many aliases has

he made his appearance, each contending for superiority, and each only owing its fancied superiority to some exceptional cause! To those at all conversant with catalogues or with the endless varieties of Peas, many instances of a similar character will suggest themselves.

Two raisers of Peas have distinguished themselves, each in their several ways, and both of them from the eastern counties —the late Dr. Maclean, of Colchester, and Mr. Laxton, of Stamford. The Peas raised by the former gentleman occupy a very high place in the estimation of all who prize this favourite vegetable. Little Gem, Advancer, and Princess Royal are highly esteemed; in fact I question if, taken all in all, we have a more general (and most deservedly so) favourite than Little Gem. It is dwarf in habit, prolific, and excellent in flavour.

Of late Peas the largest number of really new Peas have come from Mr. Laxton, of Stamford; and when we mention Alpha, Cook's Favourite, Quality, Quantity, Supreme, without counting those coming ont this season, we see his claim to being a large raiser of new Peas is just. Through the kindness of Messrs. Carter & Co. I had the opportunity of trying these this last season, and as far as my taste goes (and we must remember that in Peas as in other things tastes vary), they are inferior to the Colchester seedlings. Indeed, I have reason to believe that Mr. Laxton's first attempts were not in the direction of quality, but of size and appearance, and in this he has unquestionably succeeded, while in Alpha we have certainly an early Pea with a considerable amount of flavour; and if he works now in this direction, and can superadd flavour to the great size and appearance of such Peas as Cook's Favourite and Supreme, he will have conferred a boon on all lovers of good vegetables. One stands aghast at the guinea packet of seeds advertised by Messrs. Hurst & Co. containing five new varieties; but there seems to be a good deal of character about them, and they may give us, perhaps, that for which we are looking. There are some Peas which in every locality assert their superiority, there are others which are favourably regarded in only a few localities; and I think that a boon would be conferred on all who love good Peas if some of your correspondents would tell us what sorts suit them best, and at the same time say what the soil and situation of their gardens are. I have found Easte's Kentish Invicta in my warm and alluvial soil a very excellent Pea, early, and of good flavour.—D., *Deal*.

ROYAL HORTICULTURAL SOCIETY.

JANUARY 17TH.

THE opening meeting of the year is generally looked npon more in the light of a pleasant *réunion* than as an exhibition; but in the Council room at South Kensington yesterday were brought together what formed in reality a charming little show for the season, affording, too, a pleasing augury of the success that may be expected in spring, summer, and autumn, when Flora and Pomona bring their gifts more plentifully.

The first class in the schedule was for nine Ivies in pots. Messrs. Lane & Son, Great Berkhampstead, took the first place with well-clothed pyramids trained on wire, ranging from 3 to 4½ feet high. Among the varieties were Caenwoodiana, with small narrow-lobed leaves; Gold-blotched; Maculata; Digitata; Rægneriana; Argentea rubra, with small leaves edged with white and rose; and Canariensis maculata, with small leaves mottled with cream colour. Mr. Turner, of Slough, was second with smaller plants.

The best collection of nine hardy Conifers was exhibited by Messrs. Standish & Co., of Ascot, who had a first prize for excellent specimens of Cephalotaxus Fortunei robusta, a fine vigorous plant; Cupressus Lawsoniana fragrans, and Taxus fastigiata aurea, exhibited at the previous meeting; Thujopsis dolabrata; Retinospora obtusa pendula, very handsome; R. filifera, of an extremely graceful drooping habit; R. lycopodioides, one of the most handsome of the Japanese Conifers; and Juniperus japonica albo-variegata, strikingly splashed with white or cream colour. The second prize went to Messrs. Veitch, and Messrs. Lane had an extra prize.

Prizes were offered for the best three dishes of kitchen Apples, also for the best three dishes of dessert Pears. For Apples Mr. Parsons, gardener to R. Attenborough, Esq., Acton Green, was first with excellent fruit of Blenheim Pippin, Golden Noble, and Dumelow's Seedling. Mr. Miles, gardener to Lord Carrington, Wycombe Abbey, was second with Dumelow's Seedling, Alfriston, and Prince of Wales. Mr. Frisby, Blankney Hall, Mr. Ross, Welford Park, Newbury, and Mr. Parsons, Danesbury, also competed. For Pears Mr. Miles was first with Uvedale's St. Germain and Catillac, fine, and Vicar of Winkfield. Mr. Parsons, Danesbury, was the only other exhibitor in this class.

FRUIT COMMITTEE.—G. F. Wilson, Esq., in the chair. This being the first meeting of the year, the question of certificates was brought under consideration. There have hitherto been two certificates granted by this Committee, the first-class certificate being awarded to novelties or improvements in races of fruits and vegetables, and the special certificate for meritorious cultivation of existing kinds. It has been found, however, that a use has been made of the special certificates which was intended only for that of the first-class certificates, and to remedy any disadvantages arising from such a practice, it was decided that in future there shall be but one certificate issued, and that to be a first-class certificate for new kinds or improved races of fruits and vegetables, and that for meritorious culture a *cultural commendation* shall in future be issued, and the special certificate abolished.

Messrs. Stuart & Mein, of Kelso, sent specimens of a very good variety of Scotch Kale, very finely curled. Mr. Taylor, gardener to W. R. H. Powell, Esq., Maesgwynne, Whitland, South Wales, sent some specimens of a good variety of Six-weeks Turnip. Mr. Bray, gardener to W. A. Sanford, Esq., Nynehead Court, Wellington, Somerset, sent a very splendid bundle of Asparagus, which was of so great merit as to obtain the first cultural commendation. Mr. Cryer, the Gardens, Sneyd Park, Bristol, sent specimens of a seedling Onion, said to be a cross between Nuneham Park and Blood Red, but which was considered to be the same as Brown Globe.

Mr. Piccirello, Wigmore Street, exhibited a very interesting collection of foreign fruits and roots, the most attractive portion of which was the wonderful specimens of Garlic, which for size and colour are rarely seen. There were also in the collection Onions such as have been exhibited at former meetings and have been noticed in our reports, Melons, Oranges, Lemons, preserved Chestnuts and Figs. A letter of thanks was awarded for this collection. Mr. Wilson, gardener to Earl Fortescue, Castle Hill, South Molton, sent two remarkably handsome and large specimens of Charlotte Rothschild Pines, weighing 13¾ lbs., from plants seventeen months old. They were awarded a cultural commendation. Mr. Batters, the Gardens, Chilworth Manor, sent a box of Muscat of Alexandria Grapes, but they were too far gone; also two bunches of Black Alicante. Mr. Clarke, gardener to W. Vivian, Esq., Roehampton Lodge, sent a dish of Glou Morçeau Pears which had been well kept, but were deficient in flavour. Mr. Dancer, of Chiswick, sent a dish of Beurré d'Aremberg, excellent in quality and in flavour. A seedling Apple, called Beechwood Foundling, came from Mr. J. Freeman, gardener to Sir John Sebright, Bart., Beechwood, but it was not considered superior to varieties already in existence. Another seedling from Mr. Ross, gardener to C. Eyre, Esq., Welford Park, Newbury, was considered good, but not of sufficient merit to justify its being cultivated as a new variety. Messrs. Harrison & Son, of Leicester, sent a seedling Apple, small and round, of a greenish-yellow colour, called Lady Berners, which was not approved, and another called Prince of Wales, of good size and striped, but it, too, was not of sufficient merit.

Messrs. James Backhouse & Son, of York, sent two dishes of the Galloway Pippin which received a first-class certificate last year, and the variety maintained the same high character which was formed of it when the certificate was awarded. Mr. William Paul, of Waltham Cross, exhibited a collection of six varieties of Apples.

A report on the system of keeping Grapes in bottles was read by Mr. Moore, gardener to Earl Brownlow, Belton, which we shall publish next week, and furnish illustrations of the room and the method of keeping the Grapes.

FLORAL COMMITTEE.—W. Marshall, Esq., in the chair. Mr. Denning, gardener to Lord Londesborough, Grimston Park, Tadcaster, sent a fine collection of Orchids, including Lycaste Skinneri, Oncidium aurosum, with a branching spike of numerous rich yellow and reddish brown flowers, O. nebulosum, Ada aurantiaca, Sophronites grandiflora, with very large flowers, Lælia autumnalis, Odontoglossum cristatum, Zygopetalum Mackayi, fine; the white-flowered Saccolabium Harrisoni, Lycaste lanipes, Lælia anceps, and L. autumnalis grandiflora. A cultural commendation was awarded for Phalænopsis Porteana, with two fine spikes of lovely white flowers, with a rosy purple lip tinged with orange at the base, and dotted with crimson. This was very handsome. A first-class certificate was also given to Mr. Denning for Odontoglossum Denisonæ, of the same race as O. Alexandræ, of which it appears to be a large-flowered variety; some of the flowers of this had seven sepals and petals, the others only five; hence there seems to be a tendency towards producing semi-double, or, it may be, double flowers. The spike of this handsome plant had eighteen flowers.

Mr. Williams, of Holloway, sent a group of his new yellow-berried Aucuba, called luteo-carpa. The plants were heavily

loaded with berries, which are ornamental as affording a contrast to the red-fruited kinds. A certificate was awarded to the variety at a previous meeting. Cattleya Walkeriana, in fine bloom and colour, had a commendation. Oncidium cheirophorum, with a branching spike of canary-coloured flowers about 9 inches in length, and Odontoglossum gloriosum majus, were also shown by Mr. Williams.

Messrs. Standish & Co., of Ascot, exhibited a collection of plants, such as Geraniums, Cinerarias, Bouvardia jasminoides, Cyclamens, Lily of the Valley, and Poinsettia pulcherrima. Mr. Wiggins, gardener to W. Beck, Esq., Isleworth, received a commendation for a well-bloomed collection of Cyclamens. Mr. Clarke, market gardener, Twickenham, exhibited a numerous and excellent collection of the same flower, as did Messrs. Veitch. Messrs. E. G. Henderson likewise sent a small collection of selected varieties. Mr. Wiggins also sent half a dozen plants of kinds with the foliage more ornamentally marked than is usually seen.

From Mr. Turner, Slough, came fine baskets of Tricolor Pelargoniums, for which a commendation was given. Mrs. Headley, Achievement, and Reynolds Hole were remarkable for their splendid colouring. Mr. Turner likewise exhibited a dozen berried Aucubas of different varieties, grown as standards of from 2 to 3½ high, with great masses of bright red berries. From Mr. George, gardener to Miss Nicholson, Putney Heath, came a box of cut flowers, including Camellias, Cypripediums, Dielytra, &c. Messrs. Dobson & Sons, Isleworth, sent a collection of white-flowered Chinese Primulas in good bloom. Messrs. E. G. Henderson, St. John's Wood, likewise exhibited a number of seedlings with double flowers. Of these the following had first-class certificates:—Princess of Wales, very double, white; Exquisite, delicate peach; Magenta King, magenta rose; and Emperor, one of the Fern-leaved class, with fine, very double, lilac flowers.

Messrs. Veitch sent a grand collection of white and red Chinese Primulas, as well as the white-flowered Fern-leaved variety; also forced Persian and Charles X. Lilacs, and a box of Lily of the Valley in fine bloom, Hippeastrum pardinum, Rhododendron Princess Royal, a fine specimen of Cœlogyne cristata, Barkeria Skinneri, Cypripedium Harrisianum with one very fine bloom, Odontoglossums, fine specimens of Lycaste Skinneri superba, Saccolabium giganteum. Messrs. Veitch likewise exhibited Oncidium cheirophorum from Chiriqui, already noticed, and a Dendrobium with white sepals and petals and a purple lip.

Mr. Bull sent Dracæna concinna, a plant of graceful habit, with the old leaves of a dark olive, the young shaded yellow and purplish crimson; Crinum amabile, a very showy plant, silvery rose streaked with lilac, and brilliant purplish crimson externally; Macrozamia corallipes and plumosa, and Dæmonorops palembanicus, the last a very handsome Palm; Cypripedium pardinum, with the slipper much veined with green; and an Odontoglossum.

Mr. Lee, Arundel, Sussex, again sent his tree Carnation, Mars. From Mr. Edgerton, gardener to the Countess of Waldegrave, Strawberry Hill, Twickenham, came Cyclamen persicum splendidum with foliage of immense size; one of the four plants had white flowers, the others were not in blossom. Some plants of the Roman Hyacinth were exhibited in excellent bloom, but the name of the sender was not stated.

Messrs. Backhouse, of York, had a commendation for Lælia autumnalis grandiflora, on a block, with eleven large blooms, lovely in colour. From the Society's garden came a nice panful of Ada aurantiaca; and from Mr. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, Ilford, an Odontoglossum, said to be new, but not so ornamental as many others of the genus.

Commendations were awarded to Messrs. Veitch for their collection of Orchids, also for their Lilacs, Primulas, and Cyclamens; to Mr. Turner for his Aucubas, also for Tricolor Pelargoniums; to Mr. Clarke and Mr. Wiggins for Cyclamens; to Mr. Denning for his collection of Orchids, likewise for Phalænopsis Porteana; and to Messrs. Standish for their group of plants.

The Victoria electric thermometer, an ingenious instrument for indicating and giving notice of changes of temperature in plant houses, was also exhibited. This is the invention of Mr. Rothnie, and has been brought into public notice by Mr. Williams, of Holloway.

SOME PREDATORY INSECTS OF OUR GARDENS.—No. 25.

The effects, immediate or secondary, which are produced upon the trunks and branches of trees by the insects which penetrate the wood, or reside in or under the bark, are very variable, depending upon such causes (beside the habits of the particular insect) as the characteristics of the tree, the soil and situation, and the treatment which it receives from the weather and from man; so that the wood-devourers and wood-borers have furnished a most fruitful theme for many a discussion, and with all our modern researches we are yet in the dark (and likely to be so) on some important points in their economy. The gardener is apprehensive, sometimes too apprehensive, of the injuries he may sustain from species which carry on their work in ambush, and like crafty enemies beleaguering a town, only allow their mining operations to be detected when the victory is already in their hands. The owner of a goodly orchard well stocked with choice trees, may be excused if he heaves a sigh sometimes, when he thinks of the insect enemies which defy fumigations, and syringing, and other expedients he puts in force against the common run of grubs and caterpillars. What can he do to protect himself from the inroads of those larvæ which are not satisfied with inflicting a temporary injury to the leaves, but seek the life-blood of the tree itself? Would it be any good to visit in turn the trees and tap the wood with a hammer, as certain employees are seen on railways operating on the carriage wheels to ascertain if they are "all right?" To carry on a rigid examination frequently, and remove every piece of loose bark, besides absorbing much time, is not a thoroughly effective remedy, for the troublesome creatures frequently contrive to get under bark that is not loose. If the gardener now could manage to give full credence to the theories of those who assert that the wood-feeders form a branch or division of Nature's host of scaveugers, and remove only what is decaying or becoming useless, what a relief it would be to his mind!

It is, however, a fact almost certain, if we are to take the opinion of men capable of pronouncing with some authority, that the number of injurious species amongst the Coleoptera is not so numerous as was formerly supposed. Especially is it so with regard to those in the genus Scolytus; and of a species very well known to us near London Mr. Newman writes confidently thus, as he alludes to it while giving the history of the really destructive Goat Moth. "This," he says, "has caused the death of many valuable Elms, and a beetle (S. Destructor), breeding abundantly in the bark of the dying trees, the injury has been erroneously attributed to this beetle, and not to the true cause, which, feeding and carrying on its work of devastation out of sight, has escaped the notice of superficial observers." It may be stated, however, in passing, that the ravages of the Goat Moth do make themselves obvious in several ways, after the caterpillars have attained some size. In their mining operations they will occasionally come close to the bark and run along their galleries so near it as to render them observable, and, moreover, the odour which the creature exhales is sufficiently perceptible in some conditions of the weather. But the statement for the moment surprises us, if we are at all read in early entomological literature, where such fearful accounts have been given of the injuries done to several species of trees by the Scolyti, and to counteract the ravages of which various expedients in the way of washing, tarring (not feathering), have been proposed. Destructor, as it is called, and rightly enough, though whether it is justified in destroying is a question not finally settled, is one of the largest species in the genus. It does not seem to occur in orchards, but visits trees in pleasure gardens and parks, having a very decided partiality for the Elm, though these little beetles will also be found busy sometimes on the Ash and Lilac, having been preceded in their labours by the huge Goat larvæ already spoken of. Indeed, wherever felled Elms have been left on the ground for some few months, whether sound or unsound previously, they are sure to become the resort of swarms of these beetles, which soon dispose of the bark. The habits of S. Destructor are singular and interesting, and we are indebted to a very accurate entomologist (Dr. Chapman), for some recent valuable information on the subject. The female beetles busy themselves during June and July in preparing for the continuance of the species. This is done by the construction of burrows or galleries, which are 3 or 4 inches long, and a job of about three weeks. Along these the eggs are deposited, never less than one hundred in a burrow, and occasionally half as many more. They are covered with what the Germans call 'frass," principally consisting of the particles of gnawed wood. Whether these serve as food for a time for the newly-hatched larvæ, until they have gained sufficient power to carry on excavations for themselves, I am not prepared to say, but it is possible. The burrow runs near the wood of the tree, and the female, says Dr. Chapman, begins "by making her way along the bottom of some crack in the

bark, often by widening it for a little distance before commencing to burrow, so that the real opening of the gallery is some distance from where the little heap of out-turned frass lies, which marks its orifice." But what is a sort of nursery for the progeny is a tomb for the parent, for, her life's labour thus completed, the female Scolytus dies at the end of the gallery. The larvæ hatch in a few weeks, and form along the inner bark (and also upon the wood sometimes), those curious tracks which have been named "typographs," but are scarcely ever seen quite in their natural form, from the propensity which the different broods have to cross each other's tracks. Some might compare these "typographs" to a map in miniature, on which are delineated a number of rivers and streamlets flowing from a common point. The tracks being filled-up with excrementitious matter as the larvæ proceeds, it is unusual for one to turn round and work back again, though these channels not uncommonly run across each other. The more usual course of things with these larvæ is for them to become full-grown in the autumn, when they eat into the solid wood, and construct each a little chamber where the winter is passed. And Dr. Chapman points out, that owing to this habit they escape being devoured by birds, for as the bark is loosened in the winter by the effects of rain and wind, any exposed larvæ are quickly seized and devoured. In most years, however, a moiety of the brood passes through the course of the larval and pupal states in autumn, and apparently these neither live out the winter as beetles, nor deposit eggs. One instance amongst many others we find of what seems a kind of superfluity in Nature, and like the poet we are half inclined to think sometimes that she is not sufficiently "careful of the type." Dr. Chapman is strong in his convictions that females of S. Destructor have nothing to do with healthy trees; and, therefore, he imagines that the attacks of other insect enemies, or disease in the tree itself have always prepared the way for the inroads of these beetles. Felled trees, however, the species will find out, even while they are in the act of putting forth shoots; healthy trees which are rooted in the soil have a mode of defending themselves from such attacks by pouring out sap into the burrows while they are yet being formed. On the question as to the injuries committed by both sexes of Destructor while visiting trees in search of food, Dr. Chapman does not enter.

I should not be stating the case fairly unless I add here, that in the opinion of Professor Andouin and some others, much harm is done by the attacks of the species upon bark when it is in search of food, so that in this way (as is supposed), through the loss of sap, and the mischief done also by the rain entering through the holes which have been gnawed, the trees are prepared for the ravages of the larvæ.

Two species of the Scolytus which are of some interest to the pomologist, are S. Pruni and S. rugulosus. During last summer a correspondent of this Journal forwarded specimens of bark and wood which had been infested by the former; many of the larvæ were dead, proving that the species is rather delicate, as had been already noted by observers. The burrows of this species are to be found in Apple, Pear, and Apricot, and in all probability in other fruit trees. Dr. Chapman has found no proof of its having ever committed any positive mischief in our orchards, though it, doubtless, accelerates the decay of some trees which, as far as our judgment goes, we should consider healthy, yet some decomposition has secretly set in and is destroying the vitality. In one instance a strip of healthy bark was found to contain a few incomplete burrows, but the beetles had been annoyed by the presence of a fluid which was manifestly sap exuded from the tree. One marked peculiarity in the burrow of Pruni is, that it often begins in a squarish chamber ere it lengthens in a shape like that of Destructor. The males in the latter species make a very short stay in the burrows. In Pruni the males continue in them for some while and devour the excavated material. When of full size the larvæ bore into the wood of the tree to the depth of several lines, and the matured beetles do not emerge until the end of the June following.

The other orchard species, rugulosus, is hardier, and therefore rather more common, and is curious as burrowing occasionally in very slender branches. The opening into the burrow made by the female is not at all hidden, as in some of the other species. This burrow is not much more than an inch in length, and it is lined with comminuted particles taken, not from the bark, but from the wood, so that this "frass" gives an appearance to the gallery which is not observable in that formed by the species previously described. The eggs are laid very evenly, and the larvæ are irregular in their movements, the typograph being quite distinct in its tracery, except in any case where they are unusually crowded. This species is silent. Destructor and Pruni are able to give a vocal performance, in which the abdomen and wing-cases are concerned. Though not exactly quarrelsome, all the Scolyti are in the habit of giving each other a push with the head, should they come into contact. Perhaps it is a mode of friendly recognition, like the custom of rubbing noses which is found amongst some primitive races.

On the supposition that these beetles are hurtful Loudon and others have suggested dealing with them as follows; but the advice should, I think, be taken *cum grano salis*. The advice resolves itself into three particulars. To begin, let us say that you have before a number of suspected trees. With a spokeshave or some fitting tool you pare away the outer bark; and if on examination there are no traces of burrows or small holes in any tree, then it may be pronounced sound, so far as this insect is concerned. Secondly, assuming that on inspection you find traces of larvæ and burrows of the females, then cut down to the wood to make sure, then have the tree felled, and the bark stripped off and burnt. But allow me to add here, that if this is done during the period of hybernation, unless something is done to the wood itself, there will be an emergence of beetles next summer. Thirdly, trees, especially young ones, which have seemingly been visited by the beetles only for food, must be brushed over with coal tar, which is highly displeasing to the olfactory nerves (possibly) of the females. This may be repeated more than once, and is best done in the spring. Instances have been cited by authors, English and continental, where the life of many a promising tree has thus been saved.—J. R. S. C.

GROUND LEVELLING AND PRACTICAL GARDEN PLOTTING.—No. 26.

Before a design is drawn to suit a piece of ground it is necessary to find the superficial dimensions and the general

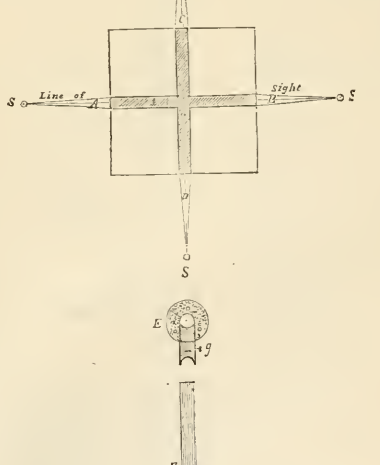


Fig. 51.

outline of the ground on which the design is to be executed, observing accurately at the same time the exact position of

any object, either natural or artificial, that may stand upon or be included in it, such as an ornamental tree, a statue, a piece of water, or a hillock.

To do so correctly it is necessary to have a cross staff. A cross staff can be made in the following manner:—Take a piece of board 6 inches square, and cut two grooves in it at right angles, as A, B, C, D, *fig.* 51; fix a circular iron plate, as E, to the under side of the board by means of three screws. The circular iron plate has a tube attached to it. The tube is dropped on to staff F, and fastened by means of screw *g*. It is also necessary to have some station staffs 5 or 6 feet long, and a measuring tape.

The means employed for finding the dimensions of the piece of ground in *fig.* 52 will be sufficient to illustrate the manner in which to survey accurately any piece of land for general use.

Fig. 52 is an irregular piece of ground, the outline of which is required, and also the exact position of the circles included therein, and the space they occupy. Insert a station staff at each angle, as at A, B, C, D. From A to B is a straight line 57 feet long. Let the assistant take one end of the tape, and also some pegs 12 or 14 inches long. Let him start from station B, taking care to keep in the straight line between stations B and C. At the distance of 13 feet 6 inches from station B insert a peg. At that point there is an offset of 1 foot. At this point it will be seen that it is necessary to find the exact position of circle *a*. Take up the peg at 13 feet 6 inches, and set the cross staff in its place; look through each end of the groove running in the line B C, as, for example, groove A B in *fig.* 51; if stations B and C are seen through the groove, the cross staff is in the right position to erect a perpendicular. Look through groove C D in the direction of the object, as in circle *a*. Send the assistant with a staff, and direct him to put it into the proper place (as near the object as it is necessary or expedient); measure the distance from staff to staff, which in this instance is 9 feet 4 inches, at a right angle with line B C. Find the square of the circle, as hereafter explained, in circle *c*. Let the assistant take the end of the tape and go towards station C, keeping in the straight line between the two stations B, C. At a distance of 33 feet from the point where the staff is inserted at 13 feet 6 inches from station B, on line B C, measure the offset, as at point 3, which is done by placing the cross staff at the point on line B C, taking the sight of stations B and C as before described. Look through the other groove, and direct the assistant to place a staff on the boundary line, as at point 3. Measure the distance from staff to staff, which is 3 feet. From the staff at point 33, on line B C, measure 17 feet, this being the spot at which the boundary line diverges most from the visual line B C, and measure the distance of the set-off as before described, which will be found to be 4 feet. Place the cross staff on line B C (in all cases observing for accuracy through groove A B the stations B C) in a position that the line seen through groove C D shall cut the centre of circle *c*, as at point *d*. The distance required on line B C, from point 17, is 7 feet. Place the station staff at points 7 and *d*; remove the staff at point *d*, and place the cross staff in its stead. Look through groove A B, observing point 7, and through groove C D. Direct the assistant to place the staves at any points, as in *e e*, which will be parallel to line B C; place the cross staff at point *f* on line *e e*, and through the other groove erect a perpendicular, as in *h*, and insert a staff. Place the cross staff in *g*, and in the same manner erect a perpendicular as in *k*. Place the cross staff on one of the perpendiculars thus found, as at *m*, observing through groove A B the points *f h*; and through groove C D direct the assistant to place station staves as in points *s*, *s*, which will be parallel to line *e e*. The circle *c* is thus enclosed in the square *f g n m*, the side of which is 8 feet, being equal to the diameter of the circle. The distance between point 7 on line B C and point *d* is 24 feet. From the station staff at point 7, on line B C, measure 16 feet 6 inches; place the cross staff and measure the offset, which is 2 feet, as before described. From the staff at point 16 feet 6 inches measure 13 feet 6 inches, and measure the offset (1 foot). Find the circle *o* as described in circle *c*. From the staff at point 13 feet 6 inches to the staff at angle C is 22 feet 6 inches, making the total length of the visnal line B C 123 feet. The points thus found on the boundary line (B 1 3 4 2 1 C) will be sufficient to indicate the curve of the line throughout. When the staves are removed for the purpose of taking observations with the cross staff, they must in all cases be replaced.

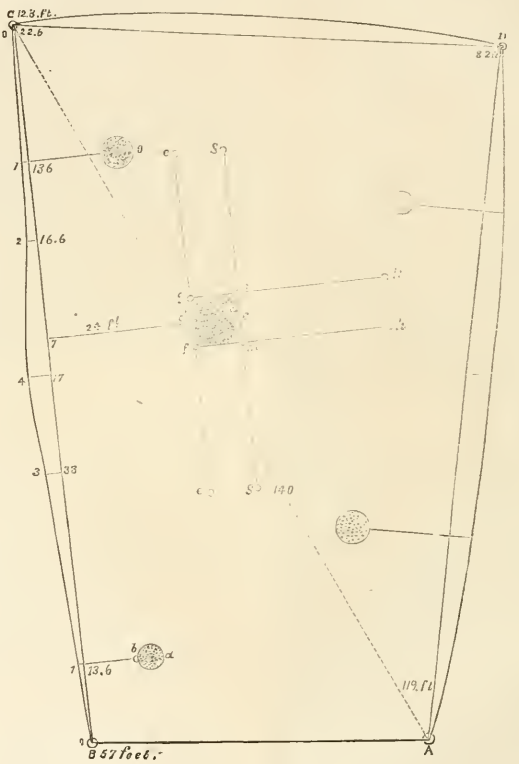


Fig. 52.
Scale 24 feet to the inch.

Enter all measurements and observations in the note book in the following manner, commencing at the bottom of the page and working upwards. The page of the note book must be divided into three columns, the middle column being used to set down the distances from the starting point, as station B, and also the distance of the point to be denoted from the point last named, as shown in the annexed table. Commencing at the bottom line—thus, B is the station point. The first point at which an observation is made is at a distance of 13 feet 6 inches from station B. The second point is

33 feet from the last point, which, added to the 13 feet 6 inches, gives the total of 46 feet 6 inches from station B. Set down 46 feet 6 inches in the next division of the column, and above it the distance to the next point, as 17 feet, add the numbers together, carry the product (which is the distance from station B) to the next division above. Measure the distance to the next point, add them together, and so proceed until the whole of the ground is measured. The columns on the left and right sides are used to denote the offsets and insets respectively, and the position of any object that may occur. They must be filled in as the measurements on line B C (denoted in the middle column) are taken. Thus, the first point on line B C being, as before described, 13 feet 6 inches from station B, it will be found that there is here an offset of 1 foot. Set down in column 1 the offset 1 foot in a line with 13 feet 6 inches in column 2; again, at the distance 46 feet 6 inches, set down in column 1 the offset 3 feet in a line with 46 feet 6 inches in column 2, and so proceed. As there are no insets on the line given by way of illustratiou, the first observation made in column 3 is the position of the circle *a*, this being at a distance of 10 feet perpendicular to line B C. At the point 13 feet 6 inches set down 10 feet in P (perpendicular) in column 3 in a line with 13 feet 6 inches in column 2, and proceed with other objects in the same manner.

C	123 0	
0	22 6	
1	100 6	P. 12 ft., c d
	13 6	
2	87 0	
	16 6	
	70 6	P. 24 ft., S.S. 8 ft.
	7	
4	63 6	
	17	
3	46 6	
	33	
1	13 6	P. 10 ft., c d
0	B	

P. 148.

In taking the dimensions of a piece of ground it is necessary to measure the length of the diagonal line as shown in dotted line A C, the distance in this case being 140 feet. The lengths of lines A B and B C having been already found, the length of the diagonal line connecting them will at once denote the angle at which they stand to each other.

The pupil will find that it will be of great assistance to him if, when taking measurements, he makes a rough sketch of the ground on the spot, taking a note of any object that may be included in it; it will act as a guide, and greatly assist his memory in drawing a correct plan.—M. O'Donnell, *Gardener to E. Leeming, Esq., Spring Grove, Richmond.*

IRON IN SOIL FOR ROSES, AND AUTUMN PRUNING.

In November, 1870, I planted three Maréchal Niel Roses; one in a bed about 4 feet from a south wall, another in a more exposed site, and No. 3 outside the south-east end of a lean-to greenhouse. All grew pretty much alike, rather slowly, until the middle of April, when a sheet-iron flue from the greenhouse had to be replaced by a cast-iron one, the former having crumbled away into rusty laminæ, which were scattered around and over the mulched roots of No. 3. Very soon after this strange top-dressing I found that four strong shoots had issued from the base of the plant, one of which grew so rapidly that in about three weeks it had reached the top of the greenhouse, although trained obliquely, and has now several branchlets; the other shoots lawfully deserve a "vig.," though inferior to the leading one. I cut away the slowcoach to make way for such railroad progress.

Attributing, rightly or wrongly, this sudden start to the accidental mixture of iron with the soil, I collected the fragments of the flue and other iron, old hoop, &c., and strewed them over the roots of three Hybrid "Perpets" (the name I give to my pets), planted in 1870, but not robust with me—viz., Marquise de Mortemart, Madame C. Wood, and Xavier Olibo, and the effect was very visible in the growth and in the colour of the foliage, which became dark and rich; but the experiment was not made until the early part of June; too late, I think, to obtain the same favourable results.

I hope next spring to get a ferruginous liquid by steeping, and to try its effect, with and without guano in the mixture, on all sorts of Roses, Teas, Perpetuals, &c.

The results noticed may be owing to a deficiency in my soil of properties which may exist or even be present in excess in other soils; but a cautious trial can do no great harm in any, and may do good in some, cases. I should be very glad to get a lesson about pruning Roses in autumn for the second bloom. —H. N. O.

[We think your system of pruning quite right, and sufficiently hard. Last season was an exceptionally bad one, and even the finest growth in many cases did not give good blooms, as the buds, owing to the cold and wet, were too long in developing, and many of the petals were rough and unformed. If you erred you erred on the right side, though, perhaps, owing to the season, you gave too much guano. Your cultivation may certainly be fairly called high cultivation, and we have little doubt but that with a favourable season you will succeed. We should advise, as the young growth from the base last year was so strong and healthy, to cut away the old wood freely, and to shorten the young wood to good sound buds, but not to prune them too closely, allowing the shoots on the same tree different lengths, and leaving the stronger shoots the longest. This gives more room for blooms, and prolongs the blooming season. Manetti stocks do not, as a rule, require such hard pruning as the old Briar system, where it was necessary to cut back freely to reduce the size of the head to a symmetrical shape, and where old wood could not be cut out; whereas on a Manetti stock, where young wood pushes freely from the base every year, the older growths can be removed, and there is no necessity to cut the younger wood too severely; but still they ought to be cut back to well-ripened stiff wood.

Your postscript is very interesting, and we shall be glad to hear the results of your further trial with iron as a manure. There is little doubt that yellow loam and clay soils which are rich in iron are good for Roses. In the case you name, the iron being corroded by the action of the smoke would be in a very soluble form, and then would be both carbonate of iron and sulphuret of iron, as well as oxide. The soot adhering to the sides of the old pipes would also contain sulphate of ammonia, which would act at once as a powerful stimulant. Sulphate of iron applied in a very diluted form is a good remedy for mildew, and in our opinion often acts as a tonic (if we may use the expression), and this also may be the action of iron in soils which form so great a proportion of the colouring matter of earth, it may help in many instances to strengthen the plant; but we fear the chemical effects of many substances on the growth of plants is as yet but little understood.—Eds.]

THE PRICE OF VEGETABLES.

Some little idea may be formed of the necessity of a reform in our greengrocery arrangements by the following passage, which occurs in the report of Mr. H. J. Morgan, on the cultivation by means of sewage irrigation of the Lodge Farm, Barking, for the year ending August 31st last, which has just been published. "The average price," says Mr. Morgan, "which our best Potatoes last year realised was from £6 to £7 per ton. This year we have obtained no more than £2 to £2 10s. Onions, which sold last year for £43 per acre in the ground, and realised a great deal more by marketing, have this year been sold by us at £28, the highest price I have heard of being £30 per acre. In the autumn of last year cut Cabbages (Collard's) fetched from 1s. to 1s. 3d. per dozen, while this year there has been a difficulty to obtain 3d. and 4d. per dozen, some having even been sold, I hear, as low as 6d. for five dozen. Scarlet Runners, which made 8s., 10s., and 11s. a-sieve last year, only brought 3d. and 6d. and 1s., until lately, when they have made 2s. and 2s. 6d. a-sieve. Bunching Greens have not paid us to market, and we have hitherto fed cattle on them. I have been told by several farmers that they have ploughed-in their crops, as it would pay them better to use them as manure than to market them. Strange to say," adds Mr. Morgan, with refreshing *naïveté*, "that in the face of all this the retail prices are as high as ever, a cut Cabbage ordinarily costing 1½d., and a small dish of Beans 4d. and 6d., with everything else in proportion."—(*Pall Mall Gazette.*)

THE CARTER CHALLENGE CUP.

This Cup, of the value of fifty guineas, is offered by Messrs. James Carter & Co., the Royal Seedsmen, 237 and 238, High Holborn, London, for competition with vegetables at the great provincial Shows of the Royal Horticultural Society, commencing this year at Birmingham. The Challenge Cup is to be in the possession of the employer, not of the gardener, and when

won three times (not necessarily consecutively) it is to become the property of the competitor so winning it.

A prize of £10 is annually given to the gardener winning the Cup, and a second prize of £3 is offered. The following are

The Carter Challenge Cup.

the conditions of the competition, which is to commence at Birmingham on June 25th—viz., For the best Collection of Vegetables (24 dishes), to include as follows:—Half a peck each of Laxton's Alpha, Laxton's Quality, Laxton's Supreme,

Carter's First Crop, Carter's White Gem, and Carter's Hundredfold Peas; Carter's Covent Garden Garnishing Parsley, Cox's Golden Gem Melon, Naseby Mammoth and Marzagole Onions, French Breakfast Radish, and Carter's Champion Cucumber. All Vegetables to be grown by *bonâ fide* gentlemen's gardeners or gentlemen amateurs, and in the open ground, excepting Cucumbers and Melons. The following to comprise dishes:—Of Onions, 12; Radish, 3 dozen; Melons and Cucumbers, 1 brace; Lettuce, 2; Beet, 3; Potatoes, 18; Savoy, 2; Kale, 2; Cauliflower, 2; Parsnips, 6; Carrot, 6; Leek, 6; Celery, 3.

CUNNINGHAMIA SINENSIS.

This, which we noticed last week in "Les Promenades de Paris," is a plant but little known in the horticultural world, nevertheless it is extremely ornamental when sufficient space can be given it to develope its beauties. It is sometimes to be found in collections under the names of Cunninghamia lanceolata, Belis jaculiflora, and Pinus lanceolata; to the latter genus it is nearly allied.

The Cunninghamia is a native of the southern parts of

Cunninghamia sinensis.

China, and although too tender to withstand the severity of our winter unharmed, it is nevertheless exceedingly beautiful when grown as a conservatory plant; and I have no doubt in the southern and western counties, if a proper position were selected, it would be found to stand out of doors the entire season, or at least with but slight protection.

In its general appearance C. sinensis somewhat resembles the Araucarias from the American continent. It succeeds best planted in a mixture of peat, loam, and sharp river sand in the proportion of three parts of loam to one of each of the others. It may be increased by cuttings, but they do not make such handsome plants in a young state as seedlings, but seeds are by no means easy to be obtained.—Experto Crede.

THE ESPERINE PEAR.

I should much like to know why Mr. Scott fathers on me Esperione as the name of a Pear. I am quite certain I have never employed it or thought of doing so. The name in your paper I judge is a misprint, but of that I have no concern.

I feel tolerably sure that your Edgarley Seedling, the Benedictine, which Mr. Porch suspects was raised from grafts from his tree, and the Coalpit Heath Pear will be found the Esperine. As to the Esperine Pear you have figured, I re-

ceived it nearly twenty years since from my old friend and pupil, M. Jamin, of Paris, but not liking it I discontinued its cultivation. The tree is here still, and I must say differs widely from the true Esperine in its shoots. About ten years since I received another tree from France under the same name. The shoots of this and its fruit are identical with the Pear named by you the Edgarley Seedling. M. Jamin evidently sent me the wrong sort; he still has it in his catalogue as a second-rate Pear. M. A. Leroy figures it, and describes it and its shoots with great accuracy, making it of first quality. Its shoots—and I place much value on their evidence—correspond exactly with M. A. Leroy's description, *les lenticelles* (freckles), are large and very plain, so that its shoots may at once be distinguished from any other kind. Such are the shoots on my tree, and on those of trees received from Mr. Porch. I should add that Mr. Porch saw this Pear, or what he supposed to be the same, on some old French trees in Mr. Young's nursery at Taunton. There is, therefore, no doubt but that the Edgarley Pear is French, and the true Esperine. The Benedictine may at once be distinguished by attention to its shoots of one year old. Mine (very young and small), I confess have not the freckled character. As to the size of the Edgarley Pear, Leroy says of Esperine, "It is above the middle size, and sometimes larger." With regard to the outlines of Pears, they often vary so much. See numerous instances in the Dictionnaire, and more particularly in page 280, in Henriette Bouvier, two figures, one of which has a long stalk, and the other a short stout one, one round and the other "turbinée obtuse," so that no one would think them to be the same.

If there is any doubt as to the Benedictine Pear, it may easily be solved. The present tree cannot be very old. An honest good judge like Mr. Cramb could at once tell us if it is a seedling or not, and thus put the question at rest. Let it, therefore, be done.—T. Rivers.

[The fog thickens. We have received a handbill issued by Mr. Sampson, of Yeovil, in which he states that the Benedictine Pear "was raised from a cross between Huyshe's Prince of Wales and Van Mons Léon Leclerc, by William Lovell, Esq., of Glastonbury." Now, this settles the question at once as to its *not* being identical with the Edgarley Pear. Huyshe's Prince of Wales was not distributed till 1859, and Van Mons Léon Leclerc was not known in this country till 1844, and we leave others to say if a seedling raised from these newly-introduced varieties, could in 1865 have produced a tree of which the oldest inhabitant of Edgarley could not remember the age. We ought to state that on reference to Mr. Rivers's manuscript we find that Esperione is a misprint.—Eds.]

A SOJOURN IN THE HIGHLANDS OF SCOTLAND.

We have long had a desire to visit the Highlands of Scotland. So much has been said and written about Ben Lawers that there are few botanists who have not had a desire to see that fine mountain. All the British botanists of note, and even some Continental ones, have paid their respects to Ben Lawers.

The early part of September is a favourable time for making a botanical trip, the heat of summer has somewhat moderated, and the days are sufficiently long to afford time for a mountain ascent, and enough work can be done to tire much younger persons than ourselves. The beginning of last September was somewhat showery and unfavourable for excursionists, but became more settled about the 6th and 7th of the month, and there were satisfactory indications of a spell of fine weather. This being so, and other circumstances favourable, Mr. T. Mitchell and myself determined to visit the Highlands, making for Killin, the very heart of them, as head-quarters in the first instance.

After arriving at Killin on the third day out we travellers, after breakfast, went out with the view to ascending Craig Curich, the nearest mountain, something over 3000 feet, and a fine feature in the landscape. As the weather seemed somewhat doubtful, we consulted certain of the natives who were hanging about. The men said it would be fine; but a fat damsel said we would not get to the Craig, as it was going to be wet. Wishing it to be fine, we heeded not the fat lady's predictions, and pushed on. For about a mile the road was level, but then it began to rise up a woody steep, partly following the course of a small stream. Here we saw many fine trees, chiefly coniferous ones, and passing through immense quantities of Brackens, with the Sweet-scented Mountain Fern (Lastrea montana) everywhere plentiful, up and up we went to the height of 1000 feet. Here we left the woods and Bracken, and entered upon a large tract of Heather, miles in extent. The margins of the stream began to show alpine vegetation, the Cloudberry (Rubus Chamæmorus), and the yellow Mountain Saxifrage (Saxifraga iroides), being abundant, and succeeded by the Alpine Lady's Mantle, Alchemilla alpina, and Oxyria reniforme. The opposite-leaved Saxifrage (Saxifraga oppositifolia), the Alpine Meadow Rue (Thalictrum alpinum), and the rare Tofieldia palustris also presently came to view. After much toil we reached at the base of the cliffs the "talus," which consists of immense quantities of material that has fallen from the cliffs above. These cliffs are nearly perpendicular for 800 or 1000 feet, but can nevertheless be traversed and explored at certain points here and there. Before we had fairly arrived at the foot of the cliffs the clouds came drifting down upon us, and the wind roared among the rocks above like the sound of innumerable railway trains moving about and around us all at once. The rain began to come down, and we were compelled to take shelter under a projecting rock. At times the clouds in which we were enveloped were so thick as to make it almost dark, and "The wind blew as 'twould have blown its last," roaring and howling most fearfully. Now and then the rain abated somewhat, and in these intervals we sallied out, and managed to get some thirty to forty good plants of the rare Holly Fern (Polystichum Lonchitis). For nearly three hours were we confined in this den on the mountain; after which the wind subsided, the clouds rose like a curtain, and the rain ceased. Evening was, however, drawing on, it was growing dusky, and as the descent the mountain in the dark, with no roads, would have been more difficult and dangerous than its ascent, we hastily quitted our den, waded through the dreary tract of bog and Heather, and reached our quarters before it was absolutely dark, not much worse for our journey, with the exception of a thorough soaking of the legs and feet.

On the fourth day we rose in good time. The morning was fine, and there was every appearance of settled weather. We breakfasted, and then started for Malgurdie or Mealgurdie, a lofty mountain about 3400 feet in height, six or seven miles to the north-west of Killin. We had learnt from some of the Killinites that this mountain was an excellent one for plant-hunting, and was seldom visited, as most people contented themselves with Ben Lawers. We passed up the valley of the Lochay, and after proceeding about four miles up the valley we came to the falls of that name. Here the valley contracts, and the waters of the Lochay are precipitated over a series of rocky escarpments of no great height. The stream at first roars, froths, foams and bubbles, and then silently, sleepily, and sluggishly steals on to Loch Tay. The timber in this part of the valley was very fine, the Larch and Spruce Firs being as straight as needles, and of great height.

It was very pleasing to watch the squirrels running up the trunks, then along the branches, and then jumping from tree to tree with their usual agility. Soon after leaving the falls Malgurdie came in view, a fine old fellow, but still far away. It was perfectly appalling to think of climbing up his huge breast and shoulders, and we did not think ourselves equal to the task. But, oh! those rocky cliffs, which we could indistinctly see near the summit, were so tempting that we could not resist. It was in vain to wish for wings, or a balloon, or any other possible or impossible means of ascent. For some time we vacillated between hope and despair; on the one hand there was the mountain of Heather piled up to the sky, with a rocky corona, and we somewhat fatigued by our six-miles walk from Killin, and labouring, moreover, under the burden of years, although possessing the spirit, wanted the physical strength and energy of youth. On the other hand, the day was gloriously fine, neither cold nor hot, temperature about 60°, lower than which it should never be if we had the thermal control. Not a breath of air disturbed the slender Birchen spray, not a cloud streaked the mountain; it was as if the ruder elements held holiday. Then that crown of rock on the summit was worth a severe struggle to reach—such a concurrence of circumstances rarely occurs, and, very probably, never would occur to us again.

If the day had been made for our exclusive benefit it could not have been better devised, and to neglect so good an opportunity would be almost a crime. Accordingly we scanned the mountain, narrowly noted the difficulties of the various routes which might be taken, and finally laid down our plan of attack. At this moment a tourist from Edinburgh, with map in hand,

overtook us, and inquired if the mountain before us was Malgurdie, to which we replied in the affirmative. Were we going to ascend it? We were thinking of it. Would we accept his company? Yes.

We started. The first half-mile or so was land partly enclosed, then nearly a mile of Grasses, Bents, and Heather, and then we know not how many miles of Heather before we came to the rocks which had tumbled down from the cliffs. In the ascent we took a short rest about every 500 feet, and these rests, together with sundry draughts of the Scotch beverage, enabled us to ascend with less fatigue. We met with four Lycopods—Lycopodium Selago, L. selaginoides, L. clavatum, and L. alpinum; also the Scotch Crowberry (Empetrum scoticum), which we here saw for the first time in its native habitat. We now set about exploring the rocks, met with Vaccinium uliginosum, and then Cornus suecica. Our joy at seeing this alpine gem *in situ*, for the first time in our lives, was almost unbounded. Then Pseudathyrium alpestre, Lastrea dilatata alpina, and the Holly Fern in plenty. We shouted "Bravo! Bravo!" The Least Willow, Salix herbacea and S. reticulata, were both there; then the Sibbaldia procumbens, Rhodiola rosea, and a host of other alpine gems which it would be too tedious to detail.

We lingered among these rocks till after the sun had set, and if we had possessed the power of the son of Nun his solar majesty would have stood still on the western mountains for many an hour. It was quite dark before we got to the foot of the mountain, and we had some difficulty in finding the road, along which we had to tramp in the dark to Killin. We ultimately arrived at our quarters a little before ten o'clock.—(*Extracted from Mr. Stansfield's notes read before the Todmorden Botanical Society.*)

(To be continued.)

THE SUCCESSION AND COMPARATIVE MERITS OF LATE GRAPES.

In common with most gardeners, I am much interested in the discussion of the merits of the newer late Grapes, and pleased to see Mr. Donaldson bringing Mrs. Pince so well forward. Mr. Freeman's remarks will assist in fixing the position of Madresfield Court Grape. Both are grand Grapes and late; but there are late, later, and latest Grapes.

Now, for late Grapes to ripen and be in plump condition after the Hamburghs, I should prefer Muscat Hamburgh and Madresfield Court, both with about the same consisteney of skin, the former the smaller and better flavoured, the latter the larger, and keeping its flavour longer. Each is in season until the 1st of January—the Madresfield Court even later.

Of later Grapes I put Alicante first, and accompany it with Mrs. Pince; both will bridge over February well. The first-named is the better-looking for bloom and colour, and carries its bloom persistently. Mrs. Pince, however, eclipses it in flavour, and is also larger in berry. It is rather amusing to bring to mind that on its *debût* Mrs. Pince was represented to be of the size of the Black Prince.

The latest section must be filled up with Lady Downe's, without any other black Grape. It has a particular merit of its own, which, with its other qualities, strikingly fixes it as being the best of the latest kinds—namely, its quality of improving in flavour with age.

The keeping properties of the three sections mentioned above do not seem to depend on the amount of the saccharine matter which they contain, as has been attempted to be shown—the idea, no doubt, being taken with much plausibility from the results of the confectioner's art—but upon the comparative thickness of the skin. Indeed, one of the demerits of Lady Downe's, in the estimation of those who have most to do with eating the berries, is that the skin is too thick, but its keeping qualities quite make amends for that. We may say of it in the words of the old song—

"Some say its beauty 's but skin deep,
Its skin's so thick 'twill always keep."

I have a late vinery planted with a Vine each of Madresfield Court and Muscat Hamburgh, three Vines each of Alicante, Mrs. Pince, and Lady Downe's, all with their roots entirely inside, and all in the rudest health, and I think there is an excellent opportunity for making a comparison of the sorts. By far the largest berries in the house are on Mrs. Pince, many of them being 1½ inch long by 1 inch wide, the flavour excellent, but they are deficient of colour about the stalks. It sets perfectly, quite unlike the Muscat Hamburgh.

The finest-looking for colour and bloom, and perhaps shape of bunch, is the Alicante. The strong point in the Madresfield Court is its adaptability for late autumn. For flavour I turn to the Muscat Hamburgh, leaving out of account three Vines of Bowood Muscat in the same house.

This reminds me of white Grapes. I should like much to hear something about the White Lady Downe's, whether its properties are indeed equal to those of the black. I think it deserves a thorough, and it must have an extensive, trial to prove it.—W. D. C.

PEACHES AND DRYING FRUITS IN DELAWARE AND MARYLAND.

I made a visit in company with a few friends through a portion of these States, and saw large orchards, from one hundred to over one thousand acres each. The quantity of fruit was so large that the growers received but a small amount for their labour. We visited one orchard of over one thousand acres where all the fruit was canned, between five and six hundred hands were employed. They canned four thousand baskets per day, and kept seven waggons employed carrying the Peaches to the house. The cans were made on the place, and all the workers, half or two-thirds females, were lodged and boarded on the premises, the men and women in separate houses. The skins or peelings, and the poor and refuse Peaches, were distilled on the place into brandy, making about forty gallons per day on the average.

At one of the towns there is a drying establishment on a new plan by steam. It is simply taking out the water, leaving the fruit with its good flavour, and when wanted for use, add water and sugar sufficient to be palatable. It takes four hours to dry the fruit, eight bushels can be dried in an hour by one machine. They had two set of hands, one for the day and one at night. All kinds of fruit and vegetables can be dried in this way. They commence with Strawberries and Raspberries, and continue on with other fruits until Peaches are ripe, after they are done. They finish off with Tomatoes, green corn, and Sweet Potatoes. A bushel of Tomatoes or Strawberries can be pressed into a space of 6 or 8 inches square, which makes it convenient for the army and navy, and for travellers.—C. D.

SANDRINGHAM HOUSE.—No. 1.

A few weeks ago were centred on Sandringham the fears and hopes of England, and not of England only, but of England's wide dominions, and of all the English-speaking race. Now, happily, the cloud which overshadowed it and us is passing into sunshine; those fears which were of the darkest have given place to hopes which are of the brightest, and in his return to health the Heir Apparent will find himself the most popular, the most valued man in England. And the sympathy of all classes and all creeds for the affliction of the Prince, his amiable Consort, and his Royal Mother was so widespread and heartfelt that no one who had not mingled with the masses of the people at the time could realise its fulness and sincerity. Then Sandringham was in all men's mouths, then everything pertaining to Sandringham was of keen interest, and now that the danger is past we may without impropriety give an account of a place of which the name will never be forgotten in our generation.

"What has been shall be again," was the utterance of an old fortune-teller, who certainly had never heard the adage, "History repeats itself." Sandringham is an illustration of the two sayings, for this estate of the heir to the throne was once the possession of Harold, King of England. When he died on the field of Hastings, his conqueror bestowed Sandringham on his Norman follower, Robert Fitz-Corbon.

It is named Saint Dersingham in the "Domesday Book," and the name is compounded of Saxon and old British words, *sand*; *der*, water; *ing*, a meadow; and *ham*, a dwelling—that is, a residence in a sandy wet meadow.

We will pass over various possessors until we come to William Cobbe de Sandringham, in the reign of Henry VII., who by will directed that his body be buried in the church of St. Mary Magdalen of Sandringham. It remained the property of the Cobbes until about 1686, when it was sold to Sir Edward Atkins, Lord Chief Baron of the Court of Exchequer, from whom it passed to the Hoosts and Henleys. In 1829, Henry Hoste-Henley resided here. Subsequently the estate passed to the Hon. Spencer Cowper, and was purchased by the late Prince Consort shortly before his death.

The estate is situated on the northern side of the county of Norfolk, about eight miles from King's Lynn, and on one side is bounded by the broad estuary of the Wash. The nearest station to it is Woolferton on the Great Eastern Railway—a remote station between which and London there are three trains a-day each way. It is a wild-looking road in winter that from Woolferton to Sandringham, over a hill, through Ferns, through young plantations of Conifers, through a wild heath, passing not a house till one reaches that of Sir William Knollys but a short distance from the Norwich gates. These were the work of Messrs. Barnard, Bishop, & Barnard, of Norwich, and exhibited at the International Exhibition of 1862; afterwards they were presented to the Prince by the county, and now form an appropriate and dignified entrance to the grounds. But before entering these we must pause to remark that on the estate a peculiar sort of carr or ironstone is largely dug out of the heath, where it is found close to the surface. It is soft and crumbling when recently dug out, has the appearance of, and often is called, "brown sugar." Sir Robert Walpole used it for constructing the walls of his stables at Houghton, and the same material has been extensively employed in building the boundary walls of the pleasure grounds, the offices of the mansion, and many of the cottages. Thin pieces of this stone are held together by mortar which, however, does not extend to the face of the wall, and the latter, consequently, has a somewhat rustic appearance. Where employed in the offices of the mansion and other buildings, stone facings at the corners give a finished appearance.

Sandringham is in a county celebrated more than others for its productions of botanists and fruit trees, and, as we shall presently show, the garden at Sandringham fully maintains the reputation of its county for fruit trees. The county's prolificacy of the latter may be traced, probably, to its former exuberance in monastic establishments. Monks were celebrated for their

Old Sandringham House—West front.

attention to gardening, and how they superabounded in Norfolk may be appreciated from the fact that of 1148 monasteries sequestered by Henry VIII., seventy-nine were in Norfolk. Confining our attention to Apples only, the following have this county for their birthplace:—Col. Harbord's Pippin, Caroline, Winter Colman, Winter Broadend, Harvey's Apple, London Pippin, Baxter's Pearmain, Belle Bonne, Hubbard's Pearmain, Winter Majetin, Fouldon Pearmain, Horsham Russet, White Stone Pippin, and Winter Quoining. Whether the Beefing originated in Norfolk is doubtful, but it was so early and so largely cultivated there as to be usually called the "Norfolk Beefing."

Knowing the reputation of Sandringham for fruit-production, —a reputation soon gained and well upheld, as witness the lead Mr. Carmichael took on more that one occasion in competitions for prizes offered by this Journal against some of the most skilful gardeners in the country—the fruit and kitchen garden was that part of the place which first engaged our attention. But in passing through the pleasure grounds on our way thither we could not but remark the great changes which have been made. The old house, of which we give a representation, has been pulled down, and a handsome new mansion, only completed last autumn, has been erected in its place from the designs of A. J. Humbert, Esq., of London. The greatest drawback is that the site is so low; and although the old pond which was in front of it has been replaced by a lake further removed, still there is more of mist in the early morning than is either desirable or healthy. A better position might have been, and would doubtless have been, chosen had it in the first instance been settled that an entirely new mansion should be erected, but only a reconstruction was at first intended, and the result has been a new house on the old site. There are many pretty views, especially from the terrace, whence every here and there one obtains glimpses of the church to which a path leads through an avenue of Scotch Firs, with a breadth of turf on each side of the gravel, a portion of the undershrubs having been removed to give place to the grass. We will now pass on to the kitchen garden, the main object of our visit, deferring till a future occasion a notice of the new mansion and its surroundings.

The kitchen garden at Sandringham forms one grand parallelogram of 900 feet by 315 feet within the walls, or rather more than 6¾ acres, besides which there is more than 8 acres of ground in outside slips, bringing up the total area to 15 acres. It will thus be seen that it is one of the largest kitchen gardens in the kingdom; and that it is also one of the most complete as well in its broad comprehensiveness as in its small details can likewise be affirmed. When it is considered that only six years ago this was a Turnip field, and that in a few months afterwards the walls were built, the ground prepared, the trees -

planted, and that now these walls are covered almost to the top with trees excellent in kind, in health, and in fruitfulness—it must be admitted that even with the great means at command the result obtained is a marvel, not only of expedition but also of completeness, yet this result is a solid and permanent one, not one of Mushroom growth, springing up in a night and decaying as fast. The story of the gardener and the farmer is worthy of the attention of the brethren of the plough, who too often look down upon him of the spade, and despise the lessons which they might gather from his practice. One day Mr. Carmichael set his eyes on the Turnip field, satisfied himself it would suit his purpose, and told the farmer he considered that the best place for the new garden. It is a pity we cannot give the vernacular, but great was the farmer's amusement. "Make a garden of that!" the idea was preposterous—only the farmer did not use so long a word, considering the gardener less wise—to put it in the mildest form—than he should be. But the garden was made on that same field, and instead of indifferent Turnips, grow, and flourish, and fruit Peaches and Apricots, Plums and Cherries, Apples and Pears, as well as every kind of vegetable crop. The means by which this success has been attained is intelligent high culture. Intelligence and high culture, then, are the moral to the tale.

The site of the kitchen garden is a little to the north-east of the mansion, near it yet perfectly concealed from view by high trees, which also shelter it from sea-sweeping winds—for the sea and the long low line of the Lincolnshire coast can be seen as one drives over the hill from Woolferton station. The ground within the walls is laid out so simply that the arrangement can be understood without the aid of a diagram. Within the oblong is a long straight-sided oval skirted all round by a 15-feet-wide drive, and at the corners quarters of Gooseberries and Currants at one end, and of orchard trees at the other, follow the sweep of the oval on one side, and a line

The path to Sandringham Church

parallel to the walls on the other two. Further, a broad walk passes through the centre of the garden lengthwise, and another crosses it at right angles also in the centre, and at the intersection of the two is a circle with a large basin for water. This arrangement, as just remarked, is very simple, and it is as effective as it is simple; indeed we know no garden which so strikes the visitor with its greatness of extent on first entering it, for most large gardens, partly from necessity, partly from choice, are cut up into compartments by cross walls. The south-aspect wall on the north side of the garden—in other words the principal south wall—like all the others, is 14 feet high, except where the vineries and Peach houses are placed, where it is higher in proportion to their various heights. This and the other walls, which are only 12 feet high, are 14 inches thick, and built in *English bond as being stronger than Flemish bond—that usually employed. All the copings are of Arbroath pavement, project 3 inches, are grooved to throw off the drip, and give a good finish to the walls. In front is a border 40 feet wide, then the 15-feet drive, next 100 feet of ground between the drive and 8-feet central walk, then another 100 feet of ground, the drive, and the north-aspect wall and border. The central area is crossed at every 75 feet by alternate lines of Apple and Pear trees, the former grown as large bush trees, the latter as pyramids with the branches trained downwards to iron circles 3 feet in diameter fixed to oak posts, rising 6 inches above the surface of the ground to allow of the hoe being passed beneath. Many of these Pears have already attained the full height to which they are to be allowed to grow, and the whole form handsome trees, and productive as well. These have 8 feet of border kept free of cropping, and being placed so far apart it is easy to cart manure on to the ground, which would not be the case if the trees were planted in lines parallel to the south wall instead of at right angles to it.

The conversion of such an extent of ground from farm land to a well-ordered kitchen garden must have been a work of great labour. Fortunately the surface was tolerably level, so that the task of reducing eminences and filling up hollows was not so great as in some cases; still towards the east end the ground rose about 6 feet, and this elevation had to be reduced. The subsoil, being in this part chalk, was taken out and used for bottoming the walks and drive. Generally the soil is a light free sandy loam lying on carr, but in this part of the garden it is rather stiffer and may be described as a chalky loam. The whole of the ground was trenched from 2½ to 3 feet deep, a layer of manure placed at the bottom of each spit, and another layer over every subsequent spit, the last layer being covered with the shovellings from the bottom of the trench.

Having now given some account of what may justly be termed the rise of Sandringham, and described the laying-out of the kitchen garden, we shall in our next enter into the way in

* The differences between these modes of laying bricks, as well as much information on the construction of walls will be found in vol. xiv, New series pp. 50, 51.

which that garden is cultivated, and the improvements effected in other parts of the grounds.

PORTRAITS OF PLANTS, FLOWERS, AND FRUITS.

Crinum brachynema. *Nat. ord.*, Amaryllideæ. *Linn. arr.*, Hexandria Monogynia.—A fine sweet-scented plant, a native of Bombay, whence it was sent to Kew in 1870. The bulb is large, conical, and straw-coloured; the leaves nearly 2 feet long, entire, smooth, unfurrowed, and bright green. Spathes somewhat red at the points. Flowers white, drooping, and fragrant.—(*Bot. Mag.*, 5937.)

Sphæralcea miniata (Vermilioned Sphæralcea).—*Nat. ord.*, Malvaceæ. *Linn. arr.*, Monadelphia Polyandria. The "Painted Mallow" was introduced into England by the Marchioness of Bute in 1798, and was grown both for purposes of greenhouse decoration and that of shrubberies in October and November. Its liability of succumbing to frost, however, led to its discontinuance as an out-doors flower. It is a branching undershrub, covered all over with white down, having vermilion-red flowers in cymose racemes, and obcordate petals, somewhat purple at the base.—(*Bot. Mag.*, 5938.)

Gilia achilleæfolia (Achillea-leaved Gilia).—*Nat. ord.*, Polemoniaceæ. *Linn. arr.*, Pentandria Monogynia.—A native of California, discovered by David Douglas in 1833. An erect annual, with the habit of the Scabious, but more pubescent and woolly at the nodes. Flowers globose, of a fine cobalt-blue, covered with large projecting stamens. Style exserted. Stigmas three.—(*Bot. Mag.*, 5939.)

Agave Besseriana (Besser's Agave). *Nat. ord.*, Amaryllideæ. *Linn. arr.*, Hexandria Monogynia.—Leaves in a dense rosette, each one ending in a hard brown spine, and having a contraction towards the base, where the leaf again expands so as to form a semilunar sheath; upper surface slightly, lower very convex; marginal spines upturned, brown. Perianth-tube long, narrowly pitcher-shaped, six-furrowed at the top, dark green; lobes green on both sides and brown at the ends. Filaments yellow-green, longer than the lobes; anthers orange-yellow. —(*Bot. Mag.*, 5940.)

Ophrys lutea (Yellow Ophrys). *Nat. ord.*, Orchideæ. *Linn. arr.*, Gynandria Monogynia.—A native of Southern Europe, extending from Crete to Smyrna, and along the coast of Africa from Morocco to Tunis. Petals yellow or yellowish green. Lip nearly quadrate, golden yellow with a purple disk; disk velvety, maroon purple, with a polished blue or violet centre. —(*Bot. Mag.*, 5941.)

Lithospermum petræum (Rock Lithospermum). *Nat. ord.*, Boragineæ. *Linn. arr.*, Pentandria Monogynia.—A native of Dalmatia, small, much-branched, with short close-set hairs. Flowers in revolute terminal cymes, dense cymes, deep violet-blue. Stamens with large exserted anthers.—(*Bot. Mag.*, 5942.)

Macrozamia corallipes (Coral-footed Macrozamia). *Nat. ord.*, Cycadeæ. *Linn. arr.*, Diœcia Polyandria.—The genus to which this plant belongs is peculiar to Australia, where it ranges from the tropical to the temperate zone. Trunk subspherical with a truncate base, 8 inches in diameter. Leaves forming a very contracted crown, pinnate; pinnæ about fifty pairs. Male cone 7 inches long, narrow-oblong, bearing a small sharp point on the lower scales, and an erect spine on the upper. Female cone shorter and stouter than the male, being about 4½ inches by 3½ when in fruit; the lower scales with a triangular point, the upper with an erect spine. Seeds orange-red.—(*Bot. Mag.*, 5943.)

Gladiolus purpureo-auratus (Purpled-golden Gladiolus). *Nat. ord.*, Irideæ. *Linn. arr.*, Triandria Monogynia.—This plant came from Natal, where the genus seems to be particularly varied and handsome. Stem 3 or 4 feet high. Leaves 6 to 9 inches long. Flowers arranged on a spike; the perianth nearly regular, pale golden yellow with a large purple blotch. —(*Bot. Mag.*, 5944.)

Senecio pteroneura (Winged-nerved Senecio). *Nat. ord.*, Compositæ. *Linn. arr.*, Syngenesia superflua.—A native of rocky and sandy hills on the Moroccan coast. It was only introduced into England last spring. Branches articulate-cylindrical, with three longitudinal ridges running down from the leaf-scars. Involucral scales green, brownish red about the middle. Flowers about thirty, spreading, pale straw-coloured.—(*Bot. Mag.*, 5945.)

Kniphofia caulescens (Stalky Kniphofia). *Nat. ord.*, Liliaceæ. *Linn. arr.*, Hexandria Monogynia.—A native of South Africa. Trunk 6 to 10 inches high, with short fleshy roots. Scape 6 to 10 inches high, erect, green, with many scattered bracts. Flowers pendulous, numerous. Perianth yellow when young, deep blood red after expansion.—(*Bot. Mag.*, 5946.)

Salvia rubescens (Ruddy Salvia). *Nat. ord.*, Labiatæ. *Linn. arr.*, Didynamia Monogynia.—A native of New Grenada. Shrub clothed with a pale hoary pubescence. Leaves ovate-cordate. Panicle studded with glandular viscid hairs. Flowers scarlet. —(*Bot. Mag.*, 5947.)

WORK FOR THE WEEK.

KITCHEN GARDEN.

Proceed with trenching, draining, and all alterations suggested previously for the ground. *Asparagus*, make a bed to succeed that in use, and on fine days draw off the lights to allow the heads to acquire their natural flavour and colour. Plant *Early Mazagan Beans* in a warm situation. Protect *Lettuces* in bad weather, but expose them freely on all other occasions. Sow for an early crop. Prepare horse droppings for *Mushroom* beds to succeed such as may soon become exhausted. Continue the introduction of *Rhubarb* and *Sea-kale* into warmth, to obtain successions of them as plants in use become worn-out. A few Strawberries may now be pushed forward, but do not drive them too fast, or the blossoms are apt to become "blind." Those in frames for succession should have plenty of air in the daytime during mild weather, but at night the lights should be put on in order to secure them against frost.

FRUIT GARDEN.

While the weather keeps mild new fruit trees may be planted; and where old trees, too, are not growing well a portion of the soil may be carefully removed from their roots and replaced by better material. Old gardens are often crowded with fruit trees, and since light and air are required more particularly than shade for the important products of the garden, take measures for removing all that are objectionable in this respect. The present is an excellent time for eradicating insects, especially those of the scale family. Where the young wood has become firm, the best of all appliances for this purpose are the sponge and syringe, with water from 110° to 130° and soft soap. Let every tie be unfastened, as these are their favourite hiding-places during winter, and where wire trellises are used they should also be thoroughly washed with this mixture.

FLOWER GARDEN.

Dig and supply flower beds with fresh soil, attend to the edgings of your walks and beds, reset flints, repair Box edgings, and rake wormcasts from your lawns with a daisy-rake. Where grass has failed under trees in the pleasure ground, rake-in strong manure, or apply manure water to prepare the soil for grass seeds, to be sown later in the season. Collect all sorts of soils, and store-up as many leaves as possible. Owing to the late mild weather Polyanthuses are throwing-up trusses of flowers. This is not a matter of so much importance in seedlings as in the varieties retained for exhibition. When the plant is strong it often happens that several trusses will show themselves at once, in which case it will be better to remove them and run the chance of having a side bloom that will often prove most excellent. These flowers, if in frames, should be protected from severe frost, and even those in the open border, though not so liable to suffer, will be better for a few fir branches, 12 or 18 inches long, stuck in the bed at intervals. There are great opportunities for improvement open in this class of flowers, and we trust that our readers generally will during the coming spring endeavour to hybridise and seed those nearest to the standard of perfection—rotundity of outline added to correctness of marking and beauty of colour. Our continental friends have done much more than our own florists in raising fresh varieties, but their energies have been directed to obtaining a diversity of colour without reference to form. Keep Auriculas from drip. Being alpine in their character, the close confinement of a frame is wholly unsuitable for them, and they therefore require all the air possible. Seed may be sown now in a cold frame, but covered very slightly, and when the frames are infested with woodlice we would advise a covering of clean and sweet moss, which keeps the surface secure from the changes of temperature, and will be of service to the germinating plants. It may be gradually removed as the young plants spring up. Tulips will only require keeping from severe frosts. Carnations and Picotees should have abundance of air, and the amateur will

do well to secure some of the best varieties early in the spring, in order that he may be enabled to raise seedlings worthy of his name. Dahlias may be started in moist heat where a great stock is required.

GREENHOUSE AND CONSERVATORY.

While the weather continues mild and fine, allow the plants in these structures the full benefit of it by admitting abundance of air, and fumigate on the first appearance of green fly, to which the late mild weather has been particularly favourable. See that the worms do not remain in quiet possession of their lodging in pots, and remedy any defects that exist in the drainage of these. We are inclined to recommend an increased and more general use of peat for ordinary potting. The best is found in old woods, and is preferable to strong, loamy, and rich soils, which we believe are too much employed. In the majority of cases the object required is not a plant grown to a large size, but a small compact specimen exhibiting the best characteristics of the plant. A few of the most advanced Azaleas, intended for blooming early, may now be planted where they can have a temperature of from 50° to 55°. Water carefully when necessary, and in mild weather ventilate freely. Some of the Camellias will now be in flower, so water must be liberally supplied, and air given tolerably freely during fine weather. Cinerarias will require careful attention in the way of watering.. Do not place them so close together as to touch one another, and be sure to keep them secure from frost. Chinese Primroses in bloom should be introduced into the greenhouse or conservatory, and others brought on to succeed them as their beauty fades ; but take care not to let them suffer from want of water. Jasminum nudiflorum—the bright yellow Primrose-like blossoms of this hardy Jasmine have such a cheerful look at this time of the year, when flowers are scarce, that a few plants of it should always be kept in pots for in-door decoration with green-leaved plants. Pelargoniums intended for flowering in May should be placed as near the glass as possible, and have a temperature of about 50° at night, though for the later-blooming plants it should not be above 40°. Solanum capsicastrum, together with Solanum pseudo-capsicum, and other sorts bearing small, round, bright-coloured fruit, are very useful at this season for purposes of decoration. See, therefore, that these in conspicuous situations do not suffer from want of water, especially if unavoidably placed in the neighbourhood of hot pipes.

STOVE.

Still be cautious in the application of more heat, as it is far better, the season being young, that plants should start somewhat later with a free growth, than make a premature and stunted one. Take every care that a due proportion of moisture is maintained in the atmosphere. Although the majority of Orchids require to be very dry at the root during the rest season, yet they, nevertheless, enjoy and require a somewhat moist atmosphere, more especially if in a state of constant and lively motion.

FORCING PIT.

The flowering of the Dutch bulbs, as Hyacinths, &c., is a most interesting part of the gardener's art. Some prepare to commence forcing them the moment they are purchased, or nearly so, but this can never answer, as it appears that in all cases several weeks of root action are necessary before the application of heat. When their pots or glasses are full of roots, then, and then only, can forcing really take place with advantage. Much care is necessary in removing them from the plunging material, as if they are suddenly exposed to light a premature development will be the consequence. They should be placed in a somewhat dark part of the stove for a few days, and abundance of atmospheric moisture provided. Continue to introduce flowering plants to the forcing pit. The dwarf-flowering Oranges might be more generally forced, as under such treatment they may be easily covered with their fragrant blossoms. Keep-up successions of Azaleas, Rhododendrons, Kalmias, Daphnes, Eparises, Roses, Lilies, Deutzias, &c. Let the forcing pit be supplied as the plants are taken from it. Bottom heat is of great assistance in advancing plants.—W. KEANE.

DOINGS OF THE LAST WEEK.

FRUIT DEPARTMENT.

GRAPES will set better without sun than Peaches. The present weather is dreadful for the latter. All that can be done is to maintain a temperature some 5°–10° lower than in sunny summer weather, and give plenty of air on mild days. Strawberries should be carefully watered, so that the soil may be neither too dry nor too moist. All who contemplate setting vineries and Peach houses in action, should see that the roots, if out of doors, are protected from cold and excessive moisture.

ORNAMENTAL DEPARTMENT.

All soil for potting should be well aërated and warmed before being used. The ball of any plant that is to be transferred to another pot should be well soaked with tepid water, allowed to stand before being finally moved, and should receive an additional watering after being potted. All plants taken from a warm sheltered place should be returned to it as soon as possible.

Acacias, although generally suitable for a cool house, are subject to being encrusted with a white scale insect. In such thick-foliaged kinds as A. armata and grandis, where washing the insects off is out of the question, the best remedies are glue water, or water thickened with clay. The plant is syringed with the latter, and placed aside to dry. After this the clay, carrying the insects with it, can be rubbed off in flakes by drawing the hand over the branches. The insect is, however, difficult to eradicate completely.

Azaleas.—On these insects, and especially thrips, must be looked for. Smoke them repeatedly and moderately with tobacco, wash well with weak soft-soap water, and afterwards with clear water, it being in both cases about the temperature of 100°. This can only be done when the plants are out of flower.

Camellias.—Keep these well drained, and apply a cool solution of water and cow dung. If the buds swell early they do not require forcing in spring and early summer.

Calceolarias.—Keep moist, cool, and airy if you wish to save tobacco-fumigating. Large-flowering herbaceous kinds which it is desirable to have in large plants, may have a little more heat at the risk of inducing green fly. The benefit of a somewhat low temperature for keeping plants free of insects is not yet thoroughly understood.

Cinerarias.—When they are in bloom, or opening their bloom, a more airy place and a slight rise in the temperature are desirable. Dryness at the roots is very injurious to them.

Daphnes.—The common or pink Indian kinds do best budded or grafted on the Spurge Daphne, and treated as Camellias. They must not be dry when in bloom. What can be more splendid than their rich Violet-like odour?

Ericas.—The winter-blooming kinds are now truly valuable, and may stand opposite the front-air openings. Give enough of water at a time to reach every fibre, and then wait until the surface of the soil is becoming dry. Tap the pot to see if it rings clear before you give it more water. See what was said lately about keeping water from the stem and collar of the plants. This more especially applies to this tribe and the

Epacris, though it is generally applicable. Epacrises will stand a good deal of direct air, but they will flourish with less than the Ericas, and are more suitable to a mixed house, as they never or rarely are troubled with mildrew.

Fuchsias, if now beginning to break, should receive what little pruning they need, and ere long be repotted, so that with the fresh growth there will be fresh rooting in fresh soil. After growth commences the plants must have the benefit of the light; use loamy, moderately rich soil, with surface-dressings and manure waterings.

Ferns.—From now is a good time for dividing and potting. Even the best and most tender of our hardy Ferns do all the better for the protection of a cool house. Even those from warm tropical countries will often flourish as well in a comparatively low temperature of from 55° to 60° in winter and early spring. They are less subject to the attack of thrips or other insects. Ferns of all kinds are rather impatient even of smoking, unless given very mildly. Weak washings with soft-soap water, followed in a day or so with clean water, both fully 100° in temperature, are safer than smoking. Fresh painting of woodwork and water pipes, and placing sulphur on hot-water pipes above 160° in temperature, will often injure the young fronds. A close atmosphere and a moderate temperature, with a fair amount of vapour, will suit the most of them better than a warmer and more airy atmosphere.

Geraniums, or rather Pelargoniums, with the exception of the Scarlets that are in bloom and need plenty of water, should be kept dry rather than wet. Florists' Pelargoniums should have a medium state of moisture, and be frequently rung to judge of the state of the soil. The most forward have been

potted into larger pots, and will receive no more stopping; but a second lot has been left unstopped to come in after the first, and other lots have been stopped to come in later. Small plants of last season have also been repotted, and the terminal buds nipped out. This, in many cases, is much better than taking away the points of shoots, as there is less check given, and it is not advisable to give any plant two checks at once. It is well to defer the picking-out of the buds for a week or so after repotting. We potted singly those florists' Pelargoniums, that had stood thickly in cutting pots during the winter.

Cyclamens showing bloom freely will now require a fair amount of water, and an airy sunny position. Large old plants are still a great treat, but they will become less so when the practice of sowing in the spring and blooming the plants from this sowing in the following winter becomes more general.

Violets.—We wished we had put more under protection. Those out of doors, owing to the frost and so much wet, have not yielded their usual crops, but we shall get the usual supply when the weather is better. Meanwhile we should have been badly off if we had nothing but those out of doors to go to. All kinds, if potted early in the autumn, bloom well in windows or anywhere under glass where severe frost is excluded.

Bulbs coming on need a good deal of water, and those plunged in a hotbed are lifted out and gradually hardened before being taken to house or window.—R. F.

TRADE CATALOGUES RECEIVED.

R. Parker, Exotic Nursery, Tooting, Surrey.—*Catalogue of Agricultural, Flower, and Vegetable Seeds, Fruit Trees, &c.*

W. Cutbush & Son, Highgate, London, N.—*Catalogue of Select Vegetable, Flower, and Farm Seeds.*

T. Bunyard & Sons, Maidstone, Ashford, and Allington.—*Descriptive Catalogue of Vegetable, Flower, and Agricultural Seeds.*

Hogg & Wood, Coldstream and Dunse, N.B.—*Spring Catalogue of Vegetable and Flower Seeds, &c.*

Little & Ballantyne, Carlisle.—*Catalogue of Forest and Ornamental Trees, Shrubs, Fruit Trees, &c.*

James Dickson & Sons, Newton Nurseries, and 102, Eastgate Street, Chester.—*Catalogue of Vegetable and Flower Seeds.—List of Gladiolus.*

Charles H. Dickson, 23, Market Place, Manchester.—*Catalogue of Vegetable, Flower, and Agricultural Seeds.*

J. Scott, Yeovil, Somerset, and Merriott, Crewkerne.—*Catalogue of Seeds for the Kitchen Garden, Flower Garden, and Farm.*

F. & A. Dickson & Sons, 106, Eastgate Street, and Upton Nurseries, Chester.—*Catalogue of Vegetable and Flower Seeds, &c.*

W. Rollisson & Sons, Tooting, London.—*General Seed Catalogue, and List of Seeds of Subtropical Plants.*

TO CORRESPONDENTS.

VINE CULTURE—BLACK GRAPES (*A Subscriber*).—The best Black Grapes are Black Hamburgh, Black Muscat of Alexandria, Black Prince, Madresfield Court Black, Lady Downe's, and Alicante. For your other questions on culture we refer you to one of our numbers of last year, No. 553, page 331.

PLANTING ESPALIERS—PEARS ON QUINCE (*Ireland*).—Pears on the Quince and Apples on the Paradise stock, trained to espaliers, should be planted from 12 to 15 feet apart. Of the sorts you name, Jargonelle, Beurré d'Amanlis, and Louise Bonne of Jersey do well on the Quince. We do not know whether the others you name will succeed. The following are recommended: Williams's Bon Chrétien, Beurré Superfin, Doyenné du Comice, Beurre Hardy, and Winter Nelis.

SUGGESTIONS (*W. Jenkinson*).—Thanks for your suggestions.

GARDEN PLAN (*J. Watson*).—We cannot furnish plans, we only criticise those proposed. In "Garden Plans," which you can have free by post from our office for 5*s.* 4*d.*, there are numerous drawings of beds, borders, &c., how to plant them, and how to cultivate the plants.

QUESTIONS (*R. C. W. S.*).—Any questions you send will receive the best replies we can obtain. We make no charge.

COMPOST FOR VINE BORDER (*An Old Subscriber*).—The very best materials for an outside Vine border is turfy loam from an old pasture. To every five cartloads of this add one hundredweight of crushed bones. Should the loam be of a heavy nature, add one cartload of mortar rubbish to every ten cartloads of loam.

LEMON TREES NOT FRUITING (*Cleveland*).—Your Lemon trees are, no doubt, seedlings. They require the same treatment as Orange trees, but being of a very much more robust growth they are much longer in coming into bearing. Do not repot if the plants are in good health, and they will soon form fruitful spurs.

RIBBON BORDER (*A Beginner*).—We do not plant borders; but with a row of standard Roses in the centre, you cannot, unless you use very small plants, have four rows all round—that is, eight rows besides the Roses in a 6*8*-inch-wide border. We would sow at the end of February Perilla, use that for the centre row in the same line as the Rose stems and between them, then a band of yellow Calceolarias, next a band of Tom Thumb, and an edging all round of a mixture of white Cerastium and Lobelia Trentham Blue. If you had cuttings, the Iresine Lindeni would be better than the Perilla. The centre filled would give relief, and then three rows round would be ample.

PLANTING WALL TREES—SOAPSUDS FOR TREES (*T. H. T.*).—You may plant the wall as proposed, but on the principle that the standards are to be pruned-in to give the dwarfs room, as two dwarf Peaches against a wall will soon cover 24 feet in length unless the roots are curbed or pruned. In that part which the sun leaves at noon, you might, as respects fruit, grow Plums and Cherries very fairly. A little soda in your soapsuds will do no harm in watering at the roots. Such a mixture may also be used for syringing trees freely when they are in a dormant state. When in full leaf we prefer weak soap water that has not been used for washing and other purposes.

TREES FOR BANK WITH ASHES FOR SUBSOIL (*Sunny*).—On a similar kind of bank we have found the Austrian Pine and Elm thrive, with Cotoneaster microphylla and Ivy for undergrowth. If the ashes are in a thick layer—say 3 feet or more—and if there is only a thin layer of soil, your chance of getting anything to grow is extremely small.

AZALEA FLOWERS SMALL (*St. Honori*).—Forcing is no doubt the cause of the flowers being small. If the plants had been brought forward less rapidly the flowers would have been larger. You might have increased the size of the flowers by giving a little weak liquid manure two or three times a-week. Having had the plants in bloom at Christmas, it is not remarkable that the flowers were small. Caladiums to winter safely require a temperature of from 60° to 65°, and cannot be kept satisfactorily in a greenhouse. The roots are much better left in the soil—in fact, in the pots, and should be set on a floor or any place that will communicate to the pots a little dampness. If they must be kept in a dry position, give a sprinkling from a syringe overhead once a-week. This keeps the rhizomes plump, and prevents their becoming farinaceous and decaying when watering is resorted to to induce fresh growth.

SEWAGE (*T. H.*).—We can hardly advise you about your tank. Our impression is, that the water from the scullery, washhouse, and slops from bedrooms with merely the water that falls from a washhouse to dilute it, will, as a rule, be too strong to water Vines in pots with. We have used common house sewage for such purposes, but then there was a considerable amount of tolerably clear water mixed with it. It is much safer to give three clear weak manure waterings than too strong a one. Try it on Cabbages and Cauliflowers, and if they suit them, give it to the Vines considerably weaker. It would be an advantage if your tank were divided so as to have one part for sewage and the other for roof water. Though we use such sewage ourselves, we always try and regulate its strength according to the fitness of the plants for receiving it. *Liquid Manure.*—If you have such a difficulty in getting liquid manure, surface-dressing the pots would answer as well, if you are afraid of the strength. The safest and cleanest way would be to scatter over the surface of a 15-inch pot about 2 ozs. of superphosphate of lime, and repeat the operation in two or three weeks. If guano is resorted to, use a quarter of an ounce to a pot at a time. A half-inch dressing of horse droppings after it has lain for a week fermenting in a heap so as to have just lost its rankness, is much relished by Vines, and acts as a mulching, rendering the necessity of watering less frequent.

SOOT WATER (*Idem*).—Clear soot water is a good liquid manure for Vines and every plant that does not prefer a cooler manure, as Azaleas and Cinerarias. A bushel of good dry soot will be enough for from 100 to 150 gallons of water. We like to have it without dust and lumps, and as clear as the best brandy. To secure this place the soot in a tub or barrel, and use only a little water at a time until you have beaten it all up into a thick paste, then mix it with the water, and add one large shovelful of quicklime; on the forenoon of the day after remove the surface scum, and on the following day there will be a powerful clear liquid manure. For tender plants it would require to be reduced. Such clear liquid is invaluable for syringing, but if you have a doubt, use it weak. The use of such water overhead will save many a tobacco-fumigating.

STAGE OR BED FOR ORCHIDS AND STOVE PLANTS (*A Young Beginner*).—There can be no doubt that some plants do better with a little bottom heat, but in your case we would be perfectly satisfied with the iron-grated platform, and evaporating-pans on the flow-pipes beneath them. There is a double suggestion we would make. As the iron-grating is there, it would be better to galvanise it, and for tender plants you might have thin round pieces of wood or slate to set the pots on, as iron is apt to get too hot or too cold for some plants. To do this well you must add two more 3-inch pipes in the pathway. If ever you should make a sort of chambers in your two pits, which you could easily do even now by having sufficient rough cocoa-nut refuse on the grating to partly plunge the pots in, then we would recommend two pipes with evaporating pans all round the sides and end of the house above the grating platforms. With your present arrangement and the addition of pipes, you may do wonders. It is a mistake to limit piping with a view to economy, as so much more firing is wanted, and because heat from very warm pipes is always unhealthy. If you wish to give a little bottom heat, all that you need do is to shut each pair of your pit with a wooden division, and use above cocoa-nut fibre, which does not harbour woodlice so much as tan. Mind, however, it is one of the best non-conductors, and, therefore, you should use it chiefly for keeping the heat about the plants. Clean sand would answer as well if you covered the grating with slates to prevent its falling through. If you wished to attempt growing some beautiful plants that require a high temperature and an additionally moist atmosphere, we would thus enclose a part of one of the pits, and place a little box over it covered with glass. The glass is easily moved and reversed, the lower side being placed uppermost, and proves exceedingly useful in such small houses. With the extra piping, however, you may do very well without these additions. Phalænopsis grandiflora does best on a log of soft wood, as the Calabash tree, or even on wood covered with cork fixed with a little sphagnum.

LAURUSTINUS NOT FLOWERING (*Black Edge*).—The sprig you enclosed to us is not injured by frost, and the flower-buds would have expanded when the weather became sufficiently mild. They are late in flowering owing to the cold and wet season. The cause of the wall plants in pots hancing their heads, we should say is injury from the late November frosts. Are the pots protected? If not, it is probable the roots have perished. The pots should be plunged in the ground over the rim, or be protected with ashes or litter in winter. All you can do is to protect the plants with mats in cold weather. What you want is mild weather. The Hollies cast their leaves in consequence of their removal, chance of position, and the early frost. You can do nothing to prevent such occurrences.

URCEOLINA AUREA AFTER FLOWERING (*G. H.*).—Keep it moderately supplied with water, give it a light airy position, and continue this treatment until about April; then after reducing the supply of water, keep the plant dry for three months, when it may be again started into growth. The *Aphelandra aurantiaca Roezlii* done flowering should be kept dry, but not so much so as to cause the leaves to shrivel, and in about three weeks it should be cut-

in; or if it is only a young plant, merely remove the flowering part, and when it has made shoots a few inches long repot it, and encourage growth with plenty of moisture and heat. Having secured a good growth expose the plant fully to light and air to secure the ripening of the wood. It is one of the finest of winter-flowering plants, and those requiring plants for table decoration ought to grow it in quantity. We can only account for Adiantum farleyense losing its fronds by the dry heat, which it does not like. Afford more moisture, and in the temperature you name it ought to thrive, and we have no doubt it will do so in spring. Magnolia Campbelli is deciduous, losing its leaves in winter it should flower in April from the ends of the branches whilst the tree is leafless. Being from Bhotan, at an elevation of from 8000 to 10,000 feet, it certainly cannot need more than a cool greenhouse, and is probably quite hardy. We should try it in a sheltered spot, for it attains the dimensions of a large tree, and so needs more room than can be accorded in an ordinary greenhouse.

FERNS IN CASE NOT THRIVING (*G. B. A.*).—The depth of soil is too little, it ought to be 3 inches, and the tray in which it is held should be perforated at the bottom with holes a quarter of an inch in diameter at 3 inches apart, and beneath this should be a cavity of at least half an inch to allow of the water draining from the tray above. This receptacle should be watertight, and have a tap at one end to let off the water occasionally. If you remedy the want of drainage, place about half an inch of crocks at the bottom of the tray for the soil, so as to permit of the free passage of water, and give twice the depth of soil you have, we think your plants will thrive. A blind between the sun and the Fern case will prevent the light proving too powerful for Ferns.

JOINTS OF HOT-WATER PIPES (*Agri*).—The mode you refer to is advertised as answering, and some acquaintances of ours say it succeeds, especially where there is not much pressure. Unfortunately we have not tried it ourselves, and what little we have seen of it would deter us from doing so. A gentleman told us the other day that a certain house had its pipes so done, and half the joints were leaking. Notwithstanding this we are assured that it answers in many places, and therefore we would not prejudice anyone against it. Were we doing the work ourselves we would make the joints tight with the usual hempen yarn made firm with a little red lead. All iron-filing and sal-ammoniac joints are just liable to expand and crack if not carefully made. The secret is not to fill the joints too full. We have had joints that cracked in a year or two. We have known others where the socket was not filled to the outside that stood the wear of some thirty years, and are as good as the day they were made.

TANK AND PIPE-HEATING (*Idem*).—We fear we do not quite understand you. You speak of having a cement tank in the centre of the vinery, and the four fresh pipes you are to add are to be used as a continuation and then as return-pipes to the boiler, and yet you also wish to work either tank or pipes, separately or combined, which would be next to impossible. Now these pipes strike us in reading your letter. First, if the vinery is not too wide and lofty, a cement tank 4½ feet wide, divided down the middle, with an opening at the farther end, a flow-pipe at one side and a return-pipe at the other, ought to be sufficient to heat a common vinery. We are supposing that the tank is 4 inches deep and covered with slate or iron. Second, what little practice we have had in this direction would lead us to hesitate before taking pipes in continuation from a tank 60 feet long, as, be the cause what it may, we have found that the circulation in such circumstances was very languid. If the tank was all flow and the pipes used as returns it would be different. On the whole, then, if we were adding these four times we would have the tank a little above the level of the highest pipes, would carry the circulation of the tank complete in itself as stated above, and take the flow-pipes either by a T-junction or direct from the boiler, rising a little towards the farthest end of the house. This end we would have a few inches below the level of the water in the tank, placing an open air-pipe there 3 or 4 feet in height, and would take the return on the same slope to the boiler. By a single valve on the flow-pipe for either two or three flow-pipes, and a similar valve on the flow-pipe to the tank, you can heat tank or pipes together or separately independently of each other. We do not see how otherwise you can attain your object. By this plan all is easy.

EFFECT ON PLANTS OF NEW PAINT (*Idem*).—Until the scent has thoroughly gone it will injure all tender foliage. In your case a little more fire heat and more air would be better, even if you have air on the top all night. The air will keep the budding Vines back, and ere long you will find the scent has gone. It would be advisable to leave a little air on at the top for a fortnight, even if you should have to use a few shovels more of coal. We speak experimentally here, as more than once we have had fine plants suffer severely when we have had to shut them too early against our judgment. Bear in mind, that a shock of fine weather at midsummer will do more to sweeten a newly painted house than a month will do at Christmas. As to painting hot-water pipes, there is a black paint generally used by tradesmen for this purpose. Dried linseed oil and lamp-black, or blue-black, make a good paint. In either case, however, the pipes should be heated and the house kept open, so as to get the fumes from the paint off before such tender plants as Ferns are placed in the house. Of course you know that tar paint is ruinous when placed on pipes.

SHRUBS FOR HEDGE (*Far West*).—We do not think Gorse would be suitable, as it requires an open situation, and in your shaded spot would grow too weakly to keep back intruders. We should plant Holly and Berberis Darwinii—two Hollies, and one Berberis per yard run; Thorn and Holly make a very good hedge if planted at the rate of five Thorns to one Holly per yard. Either of those combinations would answer your purpose. We would plant the ground as a shrubbery in such a position, for shrubs succeed better than flowering plants. We should have Rhododendrons, Chinese Arbor-Vitæ, Aucubas; Berberis Aquifolium, B. Darwinii, B. japonica, B. stenophylla; Tree Box; Cotoneaster microphylla, C. Simmonsii; Cydonia japonica; Euonymus japonicus, gold and silver-striped. Hollies, the gold and silver variegated, and plain-leaved, as Ilex Hodginsii; Common and Portugal Laurels; Laurustinus, common, and black-leaved; Phillyreas, Skimmia japonica, Yucca filamentosa and recurva, English and Irish Yew; Vinca elegantissima, Azalea pontica, Broom of sorts, Deutzia gracilis, Forsythia suspensa, Hypericum calycinum, Syringa, Ribes, Thorns, Weigelas, Lilacs, and Spiræas.

BALSAMS AND COCKSCOMBS TO FLOWER IN JULY (*An Amateur*).—April is soon enough to sow Balsam seed. We should sow early in the month in a sweet hotbed, with a temperature not below 60°. The pots should be near the glass; and when the seedlings can be handled, pot them singly in small pots, and so that the seed leaves may not be more than 2 inches above the surface. They should be continued in the hotbed, and be shifted into larger pots as the others become full of roots; and the nearer the plants can be kept to the glass without touching it, the stronger they will be. They should be placed lower in the soil at each potting, for the Balsam throws out roots all up the stem; but at the last potting the stem should be clear to within 1 inch of the seed leaves. We consider 9-inch pots sufficiently large. The buds should be picked off the main stem until there are buds on the side shoots. A light rich soil is most suitable. If the plants are likely to flower before you want them to do so, continue to pick off the buds, only you must have buds the size of peas a fortnight before you wish to have them in bloom. Cockscombs must be sown early in March, in a hothed of not less than 60°, and should be kept near the glass, potted singly when they are fit, and kept in small pots until the crowns show; then select the best, and grow them on keeping them near the glass, but not so as to touch it, affording a good temperature, moist atmosphere, and a moderate amount of air. Eight-inch pots are large enough. The Zonal Geraniums you have wintering in a room should be kept moderately dry up to March; then do any pruning required, but continue to removing irregularities of growth. After pruning, repot the plants, fine it to removing irregularities of growth. After pruning, repot the plants, taking away most of the old soil. Use pots that will just contain the roots. In May shift the plants into their blooming pots, grow them in cold frames after the middle of May, or out-doors, protecting the bloom from heavy rains. Ten bushels per acre will be a sufficient quantity to sow on Wheat; and it should be applied at the end of March or beginning of April.

NAMES OF FRUITS (*G. T. M.*).—Your Apple is Flower of Kent. (*W. K.*).—Your Apple is Reinette Grise. It is fit for dessert from November to April.

NAMES OF PLANTS (*Betchworth*).—Sparrmannia africana, a native of the Cape of Good Hope. It was introduced here in 1790, and is drawn and described in the sixth volume of the "Botanical Magazine." (*J. Batt*).—Habrothamnus fasciculatus. (*W. B. Hole*).—Sparrmannia africana, a native of the Cape. (*J. P.*).—Your Rhododendron is perfectly normal and presents nothing whatever unusual; it is merely breaking its leaf-buds. The other plant is Phytolacca purpurascens.

POULTRY, BEE AND PIGEON CHRONICLE.

A PLEA FOR JUDGES AT POULTRY SHOWS.

In trenching upon this delicate question I desire at once to say that it in no way interests me personally. I am not a poultry judge, nor have I ever suffered from incorrect judging, have only exhibited three or four times, may never exhibit again, and have never exhibited without being *decoré*. My voice is raised alike in the interests of judges, exhibitors, and managers of poultry shows. It is an unpleasant thing for a judge to have his judgment questioned, to an exhibitor to feel that he is wronged, to a committee to hear complaints; and yet I cannot see how in the present state of things this is to be avoided. A show is announced, some five hundred entries, perhaps, are made, and one judge is appointed—a man who knows his work (although I should be inclined to doubt the complete knowledge of one man in Pigeons and poultry). Well, let it be presumed he does. He is admitted to the room, he has three or four hours to decide on the various classes, to look at, examine, weigh the birds, and he has just half a minute to each pen. Now I ask, in the name of common sense, how is it possible for any man to do this? more especially when, as we, alas! hear too often in the columns of the Journal, trimming, and painting, and tricks of all kinds are practised by some exhibitors. And is it any wonder that the most glaring mistakes are made? I do not speak without book. We have had lately two shows in this county, one at A——, and the other at M——; at both of them a Mr. G—— exhibited a Dorking cockerel. The Judge was one of our most experienced poultry-fanciers, a name looked up to by everybody who knows anything of fowls. In the show at A—— this cockerel was very properly passed by—it had four toes; but, *mirabile dictu*, at M—— it obtained a first prize. Other cases of a similar character have come before me; but this is one upon which there can be no question, and so it will suffice to adduce it. Now I put it to the managers of shows whether they cannot make some alteration. Curtail the expenses in some way. Let no judge go single-handed, there ought always to be two, and give them less to do. The taste is so widely spread now, that I think it would not be difficult to obtain amateurs to act with professed judges, one in each division. Could there not be a conference held (as these are all the fashion now-a-days), of the secretaries of poultry shows to devise some plan for improving their management? Evidently something is wanted as to the changing of claimed birds, &c. In fact, there seems to me an amount of roguery connected with poultry-exhibiting, which, were it not that they appeared in your columns, I should not have credited. I have had much to do with flower shows, but the cases of dishonest showing that I have heard of or seen have been very few. Complaints very rarely find their way into the horticultural portion of the Journal, but how the Poultry Chronicle bristles with them! One is, alas! prepared to hear about cheating in horseracing and dealing, but that it should come in amongst

the poor cocks and hens is too bad. I believe one way in which it can be checked is by a more rigid system of judging; and I think all honest exhibitors will hail anything that tends to make exhibiting something different to what it now is.—D., *Deal*.

DORKINGS—HOW SHOULD FOWLS BE FED AT SHOWS?

Some few weeks back I received two letters from different quarters, each written in the same strain. "The Dorking cockerel of yours which I claimed at the Crystal Palace is dead," said one correspondent. "The two Dorking cockerels which I showed at the Crystal Palace are dead," said the other. "I have also heard that the cup cockerel, you will remember the grand black bird as sooty as the king of the sweeps may be supposed to be, is also dying." Here was a fine catalogue, but worse was to follow. I had been foolish enough to buy a pair of pullets which had won high honours at Birmingham, and gave £10 for the two, although I had birds at home nearly if not equally good. When they arrived I, of course, expected something grand; £10 will do a great many things. It will take you to Paris; keep you ten days there, and bring you back again. It will take you up the Rhine almost into Switzerland, and bring you home again with enough left to pay your railway fare first-class to your house if you only know how to manage matters. It will almost keep you in clothes for a year, if you are not too particular about the cut of your coat and the colour of your gloves. It will insure the payment of £500 after your death, if you will only begin in good time. In fact, £10 will do a vast deal more than most people imagine. Well, my precious pullets I found to be very dark (I had bought by deputy and desired dark birds), a very good match with very good feet, but their weight was nothing compared with what I have seen described in the "Journal," as neither of them weighed, I believe, over 7 lbs. Their light weight reminded me of a friend of mine who gave £10 for a first-prize cockerel (I think he was first) at the Crystal Palace, in 1870, and found when the bird arrived home that he weighed only 7¼ lbs. He, however, who deals in Dorkings must be prepared for any amount of disappointment, so that I was not much concerned. But, then, the wretched creatures would not eat! They were not actually roupy, but roup or something worse seemed certain to ensue. My careful henwife, however, fed them *nolens volens*, or more strictly speaking, *nolentes volentes*, with warm bread and milk, gin, port wine, and raw meat, so that they have survived to be highly commended at a large show, and adorn the triumph of others.

Now my chief purpose in writing this is to ask some of your learned correspondents to state what they consider the best method of feeding fowls at shows. I am told that at Birmingham they strew the pens with a quantity of sand, which is consequently mixed with their soft food, and so cannot do them much good. At a show recently where I happened to win two first prizes and a £5 5*s*. cup, I found the attendant feeding the birds in the most reckless and profuse manner, while this abominable sand was thrown down as at Birmingham and elsewhere. He seemed to know nothing of what was done at other shows, or what ought to be done, and I could not undertake to teach him. Some of your readers, however, are certain to have opinions on the subject. I, for one, should be glad to hear them.—A Winner of Four Cups.

THE ANNUAL SHOW OF PIGEONS

BY THE MEMBERS OF THE NATIONAL PERISTERONIC SOCIETY.

This was held on the 9th inst., in the tropical department of the Crystal Palace, and comprised nearly one thousand choice birds, and almost every variety. Pouters were not numerous, Mr. P. H. Jones being the only exhibitor. Almonds were many and good; the pen shown by Mr. Merck was deserving of special mention for the beautiful colour and the natural state in which the birds were shown, proving that it is not necessary to manipulate and deform the beak to produce a beautiful bird. Mr. Jayne and Mr. Ford, as may be supposed, showed splendid pairs of birds. Mr. Esden's Black Mottles were much admired, as were Mr. South's and Mr. Ford's Beards. Carriers were a fine show, including some magnificent birds from Messrs. Ord, Hedley, Greenfield, Martin, Tegetmeier (Blues), Feltham, W. B. Ford, of Weymouth, and Square, of Plymouth. Dragoons were a show in themselves, and it is quite impossible to do justice to this variety in a short article; nearly two hundred of this rapidly improving public favourite were penned, including splendid Yellows from Mr. F. Graham, of Birkenhead, and Mr. Betty; Reds, Blues, Whites, and Silvers from such well-known names as Tegetmeier, Jones Percivall, South, Martin, Feltham, Greenfield, and Jones. Barbs were well shown by Messrs. Hedley and Jones. Mr. Tegetmeier had a beautiful pen of Piping Pouters. English Owls were shown by Messrs. Esquilant and Jones, and the latter gentleman had two pairs of charming little foreigners, Blue and White. Mr. E. E. M. Royds, of Manchester, sent a pen of Jacobins, which fully sustained that gentleman's reputation. Mr. Jones had a beautiful pen of Black and Mottled Trumpeters, including two or three of great excellence. Mr. South and Mr. Jones had good pens of Turbits; Mr. Tegetmeier and Mr. H. Little a very fine collection of Antwerps, showing all the characteristics of this famous class of birds. Magpies, Nuns, and various other Toys were shown by Messrs. South, Jones Percivall, P. H. Jones, and others, and the Show may be described as fairly representing most of the usual varieties.

We are pleased to hear that the Society is very flourishing, several new members having been recently elected. The place of meeting now is the Covent Garden Hotel, King Street, Covent Garden, instead of the Freemasons' Tavern as heretofore.

BRISTOL POULTRY AND PIGEON SHOW.

Prior to the holding of this Show last week, a somewhat general opinion was expressed that the newly adopted rule of enforcing in all cases a twenty-shilling subscription, independent of entry fees, would so much limit the numbers at the Bristol Exhibition as to make it comparatively a failure compared with those shows that preceded it. We are very glad to say, that not only was there an entry of nearly a thousand pens, but also that a very strong feature of the Show was the general excellence of the birds on view; and the meeting was equally remarkable for the very few empty pens compared with those on former occasions. The result, therefore, appears to be this: the number of individual exhibitors is considerably lessened, but the quality of the birds shown in the aggregate is vastly improved. We may safely add that the Bifle Drill Hall is admirably calculated to show such specimens to the greatest advantage. The only drawback was that many of the very best pens of birds were quite overshown, and instances were not wanting in which first-class well-known birds could scarcely stand at all.

There was a very grand display of *Dorkings*, the principal winners being birds that had not been shown for many months past. Certainly one of the best collections of Buff and White *Cochins* ever seen were present, the hens being particularly fine, and also the younger birds of both sexes; but the old cocks were as yet barely through their moult. Dark *Brahmas* were exceedingly good, and there were also a few superior ones among the Light sort; but the falling-off in quality among the majority of these classes was very apparent. The *Spanish* classes were, as might be anticipated at Bristol, of first-rate character; and the whole of the *Game* fowls were equally worthy of the highest praise. Twenty-six pens of the best *Malays* we have seen for some years past were on view, and proved a very interesting portion of the collection. *Ducks*, *Turkeys*, and *Geese* were capital throughout; and the Buenos Ayrean class was as near perfection as possible. The Cayuga Ducks, shown was as near perfection as possible. The Cayuga Ducks, shown here as a novelty, have been generally known, and that for a long series of years past, in both Lancashire and Yorkshire. The Committee were evidently determined, individually, to pay every possible attention to the wants of the poultry exhibited, and they certainly left no cause for complaint by anyone. The meeting of 1872, therefore, augurs well to insure a long succession of similar annual reunions.

THE PIGEONS.

Once more in dear, dirty, interesting Bristol. Dear, because long known—not dear, certainly, in regard to purchases that can be made, for there is no cheaper shopping-place in England; dirty in summer often, in winter always; and interesting from its history and associations. Bristol and Clifton—curiously conjoined towns, Crissy-Millie fashion, but one dark, the other fair. This singular combination gives to Bristol a speciality. In its streets, unlike Bath streets, heavy-laden business waggons jostling against Clifton well-appointed carriages. It is a mingle of fashion and business all through. After a two-years absence I mark a great improvement the moment after I leave the station. Instead of crawling along narrow, ancient, ill-smelling Temple Street, there is a new, wide, straight, shaft-like street running direct from the station to the bridge, like Victoria Street, Westminster. This cuts through two or three narrow streets, up either end of which we peep in passing—a curious proof of the march of improvement. But what do I see there? A new spire in progress! Is it possible that can be St. Mary Redcliffe? 'Tis so, but the St. Mary Redcliffe of long association no more. Generations of Bristol boys have watched the broken or stunted spire as they sailed to make their fortune

from the harbour. Now a spick-and-span lofty spire, but not the St. Mary Redcliffe that all the world knew. Past Bridge Street—so named, perhaps, because it does not lead straight to the bridge, and past Broad Street—surely ironically so called, for it is narrow indeed.

Soon I reach the Rifle Drill Hall and hear its annual inhabitants. I dare say the worthy and gallant Bristol Volunteers would fight as well as their temporary guests, but they would certainly crow less. Involuntarily I exclaim with the circus clown of my youth, "Here we are again." Not a refined exclamation certainly, but it just describes one's feelings. All is just the same—the Hall the same, the pens the same. There comes Mr. Cambridge, the first to shake hands, looking just the same; there in his office pen in hand is Mr. Roué, as he always was; there the rest of the Committee; there in a glass case the gorgeous silver cups, three different kinds; there, not far off, is Mr. Rodhard and other well-known Bristol breeders of Spanish. But before going straight to the Pigeons let me compare last year's Show with this. Last year 1300 pens, this year 1000—only 300 fewer, owing to the one-pound subscription required. But "list, oh! list." Last year 440 exhibitors, this year only 167—a falling-off owing to said pound of 273. But clearly many exhibited under the name of one, as the comparatively small difference in the number of pens shows. There was no rule against this, so it was not absolutely unlawful, though not absolutely correct.

Now let me just say a word—a well-intentioned word—both to the Committee and the exhibitors. It is not right that every year a committee should lose money by a show. They give time, often precious; they give great labour, they show pluck and energy; but after all to have to put their hands into their pockets and pay out heavy sums is—well, is too much to expect, indeed what ought not to be. Perhaps, as the one-pound subscription was so much objected to, a graduated scale would answer and be less disliked; say, for instance, the exhibitor of one pen pay as entry money 15*s*., of two pens 1*u*s., and then if more than two a lower sum for each pen. Perhaps this plan would answer. But no more of this, but to the far pleasanter work of inspecting the Pigeons.

Carriers (Blue or White).—The word white seemed to be unnecessary, as no white birds appeared, but seven pens contested for the cup, which was won by pen 846, containing a pair of Mr. Yardley's birds, the cock too wide in the skull, and the blue by no means free from a smoky tinge. Mr. Ord showed in pen 840 a well-matched pair unnoticed. Mr. Fulton's (841), were a grand pair and commended. Money prizes in this class there were none.

Carriers (Black or Dun).—Sixteen pens. First and cup, Mr. Fulton's Black, he also second. Mr. Ord's Duns, pen 849, were a nice pair, and the hen in his pen 854 was very good. Also the hen in Mr. Maynard's commended pen was good.

Pouter Cocks (Any colour).—This was deservedly marked "An excellent class." The cup bird, Black Pied, is thicker than I like. Mr. Dew's highly commended, pen 870, is a remarkably neat bird, but the gem of the whole class was Mr. Fulton's very highly commended Yellow Pied, which reminded me of the Glasgow Yellows.

Pouter Hens (Any colour).—First prize, Red and somewhat coarse. Mr. Gresham's very highly commended, a neat Blue and better to my mind, and no doubt to his, than the bird with which he won second.

Almond Tumblers.—A good class, and very evenly good.

Jacobins (Any colour).—The fault of this class was the height of the hood from the head; some looked, instead of neat and close, ragged and wide. Mr. Haansbergen showed both a White pair and also a Black pair, both a treat as to colour, and good too. A treat as to colour, for the Reds were so predominant, and the Whites were unusually good.

Barbs (Any colour).—This was certainly a good class. Both the first and second-prize birds were excellent, and must have puzzled the Judges, but the very highly commended Duns were to my mind as good as either, but their condition was against them. I asked the Committee to let these birds as well as the Carriers have saucers for their food, as they cannot see grains of food on the ground.

Fantails.—A good class. The cup-birds were dirty in the extreme. The same owner, Mr. Yardley, showed a good pair of Blues. Out of the ten pens six were noticed, and the first-prize birds at Southampton and Wilts were unnoticed. This a proof of the great merit of the class.

Trumpeters.—Four pens only, and good; but Mr. Horner's second-prize birds I preferred to those of his which took first.

English Owls.—Very few, and among them one pair, pen 927, which were not English. In the first-prize pen the cock is the best.

Nuns.—Numerous. The first-prize birds well deserved their place, they were Mr. Horner's. Mr. Haansbergen had a pair of Yellows commended. It is pleasant to see that colour, as all the rest were Blacks.

Turbits.—Surely in this class condition must have ruled the Judge's mind, as both prize pens contained long-faced birds. Mr. Roper's very highly commended were very good, also pen No. 945.

Tumblers (Any other variety).—Mr. Fielding's cup birds were far from clean. The second-prize birds were real Black and White, clean and good.

Dragoons (Any colour).—A large and good class, there being fourteen pens, and not Carrier-like, but thorough Dragoons. The first prize, Blue; second, Yellow, but not so good as the same owner's pen, No. 974. But Mr. Graham may well be proud of both pens.

Antwerps.—Marked "A very good class," but I own I am utterly unable to see why they were so denominated, save, perhaps, as they exhibited every variety of head, from the lean and mousey, to the thick and Barb-like. There seems to me to need a standard shape in this class. The one figured in this Journal, contributed by the Birmingham Columbarian Society, being evidently not followed.

Any other Distinct Variety.—A pretty pair of African Owls first; a pair of Maltese, more valued by the Judge than their owner, as they were put at a low price, second. A very pretty pair of Frillbacks were shown by Mr. Arkwright; a well-matched pair of Archangels by Mr. Yardley; and a good pair of Red Magpies by Mr. Haansbergen. Also, I must notice a pretty pair of Ice by Mr. Dawson. This is a class which deserves encouragement more than it gets, for to very many visitors it is the most attractive of any, and I would there had been thirty pens instead of ten.

I do not know whether there is much to add. I would advise the Committee to have cage birds next year. The late census proved there were more ladies in proportion to gentlemen in Clifton than in any other place in England, and ladies are proverbial for their love of cage pets. I mentioned the advantage in having the food in saucers, or better still, in tins, such as contain water, as it would not be wasted by the birds; and the heavy-wattled varieties would be sure not to starve. The water-tins might also be hooked up higher, so that the water would be kept purer. The Drill Hall is, as is well known, one of the best exhibition-rooms in England, the Committee most energetic and persevering, and I hope that every year they will lose less and less, or better still, not lose at all. We, in the west of England, could not do without the Bristol Show, and may a long reign of success be in store for it.—Wiltshire Rector.

The new regulation put in force by our Committee had the effect of thinning the ranks of Hamburgh exhibitors immensely, as your readers will see by the annexed figures:—

	Pens in 1871.		1872.
Gold-spangled	39	..	21
Silver-spangled	29	..	11
Gold-pencilled	47	..	19
Silver-pencilled	21	..	16
Blacks	14	..	15
	150		82

About one-half the entries of last year. We missed the names of the majority of our leading Hamburgh breeders. Buckley, Ogden, May, Hyde, and Walters did not send their spangles; Mann, Pickles, and Ashton their Silver-pencils; Preston, Tickner, Speakman, and Smith their Golds; nor Kilvert, Sidgwick, and Marlor their Blacks. Hence the disappointment of Hamburgh breeders who visited the Show.

If the entries were few, the quality as a whole was also very much below that of last year with one exception, the Black Hamburgh cocks. Mr. Sergeantson's first and second-prize pens contained unquestionably the best birds of the Show (I am speaking of Hamburghs only). And why the cup allotted to Pencilled and Blacks went to Mr. Parsons instead of Mr. Sergeantson is an enigma not easy to be solved, for the Golden cockerel in point of tail, earlobes, carriage, and condition would not bear comparison with the Black. The rev. gentleman's hens were very small, and gave me the melancholy foreboding of a possibility of this new and beautiful variety dwindling down to the level of Pencilleds in point of size. Pray, Messrs. Judges, if you admire, and very properly, lustre of plumage, neat comb, beautiful ears, and a sprightly carriage, do not forget size! In the Gold-pencilled cocks, the ingenuity of a Yorkshire exhibitor was somewhat freely commented upon. Every breeder of this variety knows how to appreciate beautifully-arched sickle feathers. What Nature here lacked Art supplied, the barrel of the long sickle feathers of the cockerel in question being very dexterously bent (a friend of mine very wickedly suggested with a curling iron), to give the desired sweep! The Gold-pencilleds throughout lacked the beautiful ground colour which has been so often insisted upon, and justly so, in your columns. In other respects the Pencilled hens were fair as a whole, and I was glad that the Judges recognised the value of a pencilled breast, even at the expense of a cloudy hackle, by giving the cup to Mr. Bloodworth's hens. The Silver-pencilled cocks were the worst class in the Show; while in the hens the

fine pencilling but rather dark necks of the second and third pens had to give way to the clear hackle of Mr. Beldon's pair. Spangles were a long way behind those of last year as a whole, although the prize birds deserved their positions.

In conclusion, Mr. Editor, allow me on behalf of a large number of amateurs, to express the hope that the Committee of the Bristol and Clifton Show will not repeat their blunder of 1872. If a preliminary subscription be considered necessary, let it be on the same footing as Birmingham, four pens for every 32s., instead of two pens for the same amount. Last year we had 433 exhibitors, this year 163. I leave this fact to speak for itself.—P.

It must now be clear to the Committee of the Bristol Show that their obnoxious 20s. subscription is not at all relished or supported by the exhibitors in general, as evidenced by the number of exhibitors in 1871, against those of 1872. They may say, We have not incurred any pecuniary loss by the alteration, thanks to large exhibitors (or at least forced large exhibitors); but the fact that there are only 163 exhibitors this year against 426 last year speaks for itself, and will caution the Committee that they must study the small as well as the large exhibitor.

I trust the Committee will endeavour to make some alteration for the better so that this hitherto first-class Show may redeem its lost supporters. It is not to be expected that the Committee can carry on the Show at a loss, neither would any one that had the least love for the fancy expect them to do so, but let all be placed on the same fair footing, whether great or small exhibitors, and then the Committee will be large and successfully supported.—WELL-WISHER.

KENDAL POULTRY SHOW.

THE following awards were made at this Show, held on the 11th, 12th, and 13th inst:—

GAME (White and Piles).—1, C. W. Brierley, Middleton. 2, — Thompson, Higher Greaves, Lancaster. 3, F. Sales, Crowle, Doncaster.

GAME (Black-breasted and other Reds).—1, H. M. Julian, Hull. 2, C. W. Brierley. 3, T. Mason, Green Acre, Lancaster. *hc*, F. Sales; J. Chester, High Town, Nantwich; J. Wilson, Rigmaden, Kirkby Lonsdale. *c*, Miss Graham, Kendal. *Chickens.*—1, C. W. Brierley. 2, G. F. Ward, Wrenbury, Nantwich. 3, E. Aykroyd, Eccleshill, Leeds. *hc*, J. Jones, Nantwich; T. Burgess, Whitchurch, Salop; J. Chester.

GAME (Any other variety).—1, — Brierley. 2, — Thompson. 3, F. Sales. *hc*, H. M. Julian, Hull; J. B. Cockerton, Cartmell Fell; E. Winwood, Worcester. *c*, H. M. Julian, Hull. *Hen.*—1, C. W. Brierley. 2, E. Wells, Kendal. 3, T. Mason, Lancaster. *hc*, G. F. Ward, Wrenbury, Nantwich; — Brierley.

GAME.—*Cock.*—1, G. F. Ward, Sprosting Wood, Wrenbury. 2, H. M. Julian, Hull. 3, J. Bowness, Manche-ter. *hc*, G. Clements, Birmingham; — Brierley. *Cockerel.*—1 and Cup, — Brierley. 2, J. O. Rigg, Ulverston. 3, W. Barnes, Blencathasset, Aspatria. *hc*, J. Jones, Nantwich; T. Burgess, Whitchurch; T. Mason, Lancaster; J. Mashiter, Ulverston.

GAME BANTAMS.—*Cock.*—1, T. Sharples, Forest Bank, Rawtenstall. 2, G. Todd, Sunderland. 3, J. Oldfield, Bradford. *hc*, J. W. Morris, Rochdale; W. Caton, Kirkby Lonsdale; — Noble, Staincliffe, Dewsbury; H. J. Nicholson, Cumberland; J. W. Brockbank, Kirksanton; A. Ainslie, Ulverston; T. Barker, Bornley; J. R. Robinson, Sunderland; W. Adams, St. Clements.

GAME BANTAMS (Black-breasted and other Reds).—Cup and 2, T. Sharples, Rawtenstall. 3, G. Todd. *hc*, — Noble, Staincliffe; H. J. Nicholson; J. S. Butler, Poulton-le-Fylde; J. R. Robinson.

GAME BANTAMS (Any other variety).—1, G. Todd. 2, — Sharples. 3, Bellingham & Hall, Burnley. *hc*, Rev. C. J. P. Keene, Hulsall. *c*, J. Goth, Windermere.

BANTAMS (Any other variety except Game).—1, J. Sichel, Timperley (Pekin). 2 and 3, — Leno, Dunstable (Laced). *hc*, J. Walker, Birstwith, Ripley (White); W. W. Boulton, Beverley (Cuckoo); R. H. Ashton, Mottram (Black); — Walker, Halifax (Black); E. Blackwell, Bolton-le-Sands; F. Powell, Knaresbrough (Laced); Countess Tankerville, Alnwick (Frizzled Japanese); T. Waddington, Blackburn (Black); J. Watts; H. Beldon. *c*, W. H. Robinson, Keighley (Black).

HAMBURGHS (Silver-spangled).—1 and Cup, Ashton & Booth, Mottram. 2 and 3, D. Lord, Stacksteads. *hc*, G. & S. Duckworth, Church. *c*, W. J. Thompson, Morpeth; H. Beldon, Bingley.

HAMBURGHS (Golden-spangled).—1, — Lord. 2, H. Beldon. 3, J. Brrghley, Ashtonunder-Lyne. *hc*, G. & J. Duckworth; E. Brierley, Heywood; Countess Tankerville, Alnwick.

HAMBURGHS (Silver-pencilled).—1, J. Robinson, Garstang. 2, W. M. Mann, Kendal. 3, H. Beldon. *c*, Countess Tankerville.

HAMBURGHS (Golden-pencilled).—1, D. Lord. 2, H. Beldon. 3, J. Robinson, Garstang. *hc*, J. Walker, Birstwith.

DORKINGS (Coloured, except Silver-Grey).—1 and Cup, Hons. H. & C. W. Fitzwilliam, Rotherham. 2, R. D. Holt, Windermere. 3, J. White, Warlaby. *hc*, R. D. Holt; W. Rutledge, Kendal; Miss Fairhurst, Ormskirk. *c*, — Stott, Healey. *Chickens.*—1, W. Swann, Bedlington. 2, Rev. E. Bartram, Great Berkhampstead. 3, — Stott. *hc*, R. Smalley, Lancaster; D. Gellatly, Meigle; Mrs. F. S. Arkwright, Chesterfield (2).

DORKINGS (Silver Grey, or any other variety).—1, R. D Holt. 2, J. Robinson. 3, J. J. Waller, Kendal. *hc*, W. Jackson, Bolton-le Sands; D. Parsons, Cuerden.

COCHIN-CHINA (Cinnamon and Buff).—1 and 2, W. A. Taylor, Manchester. 3, Countess Tankerville. *hc*, T. Stretch, Ormskirk; G. F. Slatter, Carlisle. *c*, J. A. Winstanley, Preston; E. Fearon, Whitehaven.

COCHIN-CHINA (Brown or Partridge-feathered).—1, T Stretch 2 and 3, W. A. Taylor. *hc*, H. Lloyd, jun., Handsworth; E. Tadman, Whitenurch (2).

COCHIN-CHINA (White).—Cup, R. Smalley, L. J. Sichel, Timperley. 3, Miss A. Williamson, Leicester. *hc*, T. Atterton, Leighton Buzzard; J. Mashiter, Ulverston.

SPANISH (Black).—1, J. Thresh, Bradford 2, H. Beldon. 3, E. Jackson, Finchfield, Wolverhampton. *hc*, J. F. Harrison, Kendal; R. Smith, jun., Malton.

BRAHMA POOTRAS (Dark).—Cup and 2, — Ansdell, St. Helens. 3, W. A. Taylor. *hc*, C. Prichard, Tettenhall, Wolverhampton; J. Watts, King's Heath; J. Sichel, Timperley; Mrs. F. S. Arkwright, Chesterfield.

BRAHMA POOTRAS (Light).—1, J. Pares, Guildford. 2, T. A. Dean, Marden, Hereford.

ANY OTHER VARIETY.—1, H. Beldon. 2, J. Sichel. 3, R. Hawkins, Durham. *hc*, T. Kew, Burton; W. A. G. James, Kirkby Lonsdale; Hons. H. & C. W. Fitzwilliam (La Flèche); W. J. Thompson, Morpeth. *c*, J. K. Fowler (Aylesbury (French).

SELLING CLASS.—1, Rev. C. H. Lucas, Stamford (White Cochins). 2 and 3, — Wakefield, Golborne, Newtoo-le-Willows (Polands and Roncus). 4, — Brierley 5, W. A. G. James (Shitans). *hc*, R. D. Holt (Dorkings); J. Gelderd. Kendal (Domesticated Wild Ducks); T. Stuart, Staveley (Hamburghs); E. Smith, Papmans, Rochdale (Dorkings); D. Gellatly, Meigle (Hamburghs); H. B. Smith, Broughton, Preston (Polands); S. Stephens, jun., Ebley, Stroud; J. Watts, King's Heath; E. Fearon, Whitehaven (2); W. W. Rutledge (Dorkings). *c*, T. J. Harrison, Kendal (Black Spanish); G. F. Whitehouse, King's Heath (Hamburghs); W. A. G. James (Shitans); Mrs. E. Bowling, Lancaster (Roncus); E. Leech, Rochdale; E. Wells, jun., Stricklandgate, Kendal (2); W. W. Ruttledge (Dorkings).

DUCKS (White Aylesbury).—Cup and 3, J. K Fowler, Aylesbury. 2, E. Leech.

DUCKS (Rouen).—1, A. Dickinson, Westcroft. 2 E. Leech. 3, J. Newton, Silsden, Leeds. *hc*, J. Banks, Kendal; Miss Waller, Kendal; H. B. Smith, Broughton, Preston; W. J. Thompson, Morpeth; J. K. Fowler, Aylesbury.

DUCKS (Black East Indian).—1, G. E. Sainsbury, Devizes. 2 and *hc*, S. Burn, Whitby. 3, F. Pittis, jun., Newport, Isle of Wight.

DUCKS (Any other variety).—1, M. Leno (Mandarin). 2, H B. Smith, Broughton, Preston. 3, — Brierley.

TURKEYS.—1, T. J. Harrison, Singleton Park, Kendal. 2, E. Leech, Rochdale. 3, N. Russell, Bryngwyn, Oswestry.

GEESE.—1, G. F. Slatter, Carlisle. 2, J. K. Fowler, Aylesbury. 3, E. Leech. *hc*, R. Rawlinson, Docker Hall, Kendal.

SPECIAL PRIZES FOR LOCAL EXHIBITORS.

GAME.—*Chickens.*—1, T. Graham, Kendal. 2, J. Barrow, jun., Kendal. 3, — Redhead, Kendal. Extra 3, H. Leighton, Beethnm. *Pullet.*—1, W. F. Redhead. 2, Capt. Arnold, Kendal. 3, Graham & Robinson, Kendal. *hc*, J. Redhead; J. Wilson, Rigmaden; J. Wells, Kendal.

HAMBURGHS.—*Chickens.*—1 and 3, W. M. MANN, Kendal. 2, J. Roberts, Burton and Holme.

SPANISH (Black).—*Chickens.*—1 and 2, — Harrison, Kendal. 3, C. R. Kay, Haverbrack, Milnthorpe.

DORKINGS.—*Chickens.*—1, R. D. Holt. 2, — Ruttledge. 3, — Waller, Kendal. *hc*, F. Wilson, Underfell, Kendal; Mrs. Hind, Kendal.

COCHINS.—*Chickens.*—1, A. Fulton, Sedgwick. 2, J. Hine. 3, — Stainton, Milnthorpe. *hc*, C. R. Kay; — James, Kirkby Lonsdale.

BRAHMAS.—1 and 2, W. L. Hind, Kendal. 3, Mrs. G. Cartmel, Kendal.

BANTAMS.—*Chickens.*—1, W. Caton, Kirkby Lonsdale. 2, Eadson, Kendal. 3, J. Busher, Kendal.

DUCKS.—1, J. Banks, Kendal. 2, J. W. Fawcett, Old Hutton, Milnthorpe. J. J. Waller.

PIGEONS.

CARRIERS.—1, T. Waddington, Blackburn 2, T. Stretch, Ormskirk. *hc*, W. Jackson, Bolton-le-Sands; — Watkins, Marden, Hereford; Messrs. Towerson, Egremont.

ANTWERPS —1, — Copeman, Birmingham. 2, H. Yardley. Birmingham. *hc*, — Cook, Lancaster; — Collinson, Halifax. *c*, R. Towers, Lancaster; — Collinson; — Beldon.

TUMBLERS.—1, W. Lumb, Rochdale. 2, Messrs. Towerson. *hc*, — Teehay, Bursengh, Ormskirk; H. Yardley.

OWLS.—1, W. Lumb. 2, Messrs. Towerson. *hc*, R. Thompson, Penrith; A. Billyrall, Nottingham; H. Yardley; T. Waddington, Blackburn; J. Watts; J. Chadwick, Park View, Bolton. *c*, — Bell, Kendal; H. Garnett, Kendal.

POUTERS OR CROPPERS.—1, T. Waddington. 2, — Beldon. *hc*, H. Yardley; Messrs. Towerson.

BARBS.—1, T. Waddington. 2, H. Yardley. *hc*, W. Jackson; J. Chadwick. *c*, T. Kew.

FANTAILS.—1, T. Waddington. 2, H. Yardley. *hc*, J. Watts.

TURBITS.—1, R. Thompson. 2, T. Waddington. *hc*, R. Thompson; T. Waddington; Messrs. Towerson

TRUMPETERS.—1, M. Waddington, Blackburn.

JACOBINS.—2, Messrs. Towerson. *hc*, T. Waddington; F. Waitt, Birmingham. *c*, Messrs. Towerson; F. Waitt.

ANY OTHER VARIETY.—1, T. Waddington. 2, T. Imrie, Ayr. *hc*, H. Garnett, Kendal; H. Yardley; — Beldon; Messrs. Towerson; W. Lumb. *c*, — Bell, Kendal; T. Waddington.

JUDGES.—Mr. E. Hewitt, Sparkbrook, Birmingham; Mr. R. Teehay, Fulwood, Preston.

NENTHEAD (CUMBERLAND) ORNITHOLOGICAL SHOW.

THIS Show was held on the 11th and 12th inst. A more chilly or uninviting region for the culture of high-class poultry it would be difficult to conceive, and yet many excellent specimens are reared and exhibited in most of the classes.

In *Game* the adult birds were superior to the young, although the second-prize pen of Black Red chickens contained one of the most perfect pullets it is possible to conceive. Of *Hamburghs* there were also some good specimens in most of the classes, notably the first-prize pens of Silver-pencilled and Spangled, although the best class in the Show proved to be that for pairs of hens. The first prize and cup for the best pen in the Show were awarded to a pair of Golden-spangled hens, the second prize to Spanish, the third to Game, and the fourth to Silver-pencilled, which were, however, a little out of condition. *Bantams* were not good, with the exception of the first-prize Black chickens, and in *Pigeons* and *Ducks* there was nothing remarkable.

Of *Cage Birds* there was a good show, most of the birds being in good trim. The cup for this section was carried off by a handsome pair of even four-pointed Norwich, the Jonque bird in this cage being perfectly marked. Those next in point of quality were the Belgians and the Green Canaries, the latter of which were of remarkable soundness of colour.

GAME.—*Black-breasted and other Reds.*—1, W. Walton, Cocklake. 2, T. Brown. *c*, T. Brown. *Chickens.*—1, J. Stepheason, Dykehead. 2, T. Brown. *hc*, W. Liverick, Nenthead; J. Stephenson (2). *c*, J. Stephenson. *Any other Variety.*—1, L. Cassor, Ulverston. 2, G. Holmes, Great Driffield. *hc*, W. Walton. *Chickens.*—1, T. Brown. 2, W. Walton.

HAMBURGHS.—*Golden-spangled.*—1, G. Holmes. 2, Rev. H. Robinson, Nenthead. *hc*, E. White, Alston. *Chickens.*—1 and 2, J. Todd, White Lee. *Golden-pencilled.*—1, G. Holmes. 2, J. Nicholaeo, jun., Carlisle. *Chickens.*—1, G. Holmes. 2, Walton & Rutherford. *Silver-spangled.*—1, G. Holmes. 2, J. Taylor. *hc*, J. G. Millican; W. Dowson; J. Nicholson, jun. *Chickens.*—1, J. J. Millican. 2, Walton & Rutherford. *c*, J. Taylor. *Silver-pencilled.*—1 and 2, J. Stephenson. *hc*, J. Brown, Sunderland. *c*, J. Taylor. *Chickens.*—1, J. Brown. 2, G. Holmes *hc*, J Nicholson. *c*, J. Stephenson.

DORKINGS.—1, D. Walton, Hudgill. 2, W. Walton. *hc*, J. Hilton; Walton and Rutherford *Chickens.*—2, W. Walton.

SPANISH.—1, H. Wilkinson, Farby. 2, G. Holmes. *Chickens.*—1, H. Wilkinson. 2, W. Bell, Alston. *hc*, W. Thompson, Nenthead. *c*, J. Story, Alston; J. Kindred.
POLANDS.—1, J. Chaplow. 2, P. Swindle. *Chickens.*—1, P. Swindle. 2, J. Chaplow.
BANTAMS.—1, G. Holmes. 2, T Hymers, Hudgill. *hc*, P. Swindle. *Chickens.*—1, G. Holmes. 2, A. Elliott. *hc*, J. D. Stephenson.
COCHIN-CHINAS.—1 and 2, J. Stephenson.
ANY OTHER VARIETY.—1, D. Walton. 2, J. Taylor. *Hens.*—1 and Cup, G. Holmes. 2, H. Wilkinson. 3, Walton & Rutherford. 4, J. Brown. 5, R. Walton. *vhc*, J. J. Millican. *hc*, J. D. Stephenson; T. Brown. *c*, T. Storey, Alston.
DUCKS.—1 and 2, J. Kindred.
PIGEONS.—*Pouters.*—1, R. & W. Walton. 2, J. Guthrie, Hexham. *Carriers.*—2, J. Guthrie. *Tumblers.*—1, J. Guthrie. 2, R. & W. Walton.

CAGE BIRDS.

CANARY.—*Belgian.*—1, T. Brown. 2 and *hc*, R. & W. Walton.
YELLOW.—1, J. Dickinson. 2, R. Walton. *hc*, J. Robson; J. Guthrie.
BUFF.—1, J. Robson. 2, T. Brown. *hc*, J. Dickinson (2); R. Walton; J. Erwin, Nenthead. *c*, R. & W. Walton; T. Brown.
YELLOW MARKED.—2, R. Walton.
BUFF MARKED.—1, P. Swindle. 2, R. Walton. *hc*, R. Walton; W. Tatters.
GREEN.—1, J. Richardson. 2 and *hc*, W. Thompson.
DUN.—1, J. Stephenson. 2, R. Walton. *hc*, J. Richardson; J. Stephenson.
GOLDFINCH.—1, R. Rutherford. 2, W. Thompson.
MULE.—1 and 2, J. Guthrie. *c*, J. Hind.
BULLFINCH.—1, R. Rutherford.
BEST PAIR.—1 and Cup, R. Walton. 2 and *c*, J. Dickinson.

JUDGE.—Mr. E. Hutton, Pudsey, Leeds.

WALSALL RABBIT SHOW.

THE following are the weights, ear-dimensions, and age of the prize Rabbits at this Show, which took place on December 26th, 27th, and 28th :—

	Ears. length.	Ears. wdth.	Weight.	Age.
	ins.	ins.	lbs. ozs.	mhs. dys.
1, R. Pugh, Darlaston (Sooty)	22¾	5⅜ ..	7 10 ..	8 13
2, J. Pritchard, Wednesbury (Sooty)	22	5⅜ ..	8 12 ..	7 9
ALL PROPERTIES.				
1, F. Smallman, Walsall (Black and White buck)	20½	5 ..	11 5 ..	10 12
2, D. Maybury, Darlaston (Black and White doe)	20½	5¼ ..	5 6 ..	4 0
1, R. Pugh (Yellow and White doe)	20⅜	5 ..	10 2 ..	8 13
2, R. Pugh (Yellow and White buck)	20¼	5 ..	8 2 ..	8 13
1, J. Pritchard (Grey and White doe)	21	5¼ ..	7 0 ..	4 5
2, J. Bates, Walsall (Grey and White doe)	19⅞	5 ..	6 0 ..	4 15
1, W. Hunter, Walsall (Blue and White doe)	18½	4½ ..	8 0 ..	8 10
1, J. Britchard (Tortoiseshell doe)	20½	5¼ ..	8 2 ..	7 9
2, H. F. Wild (Tortoiseshell doe)	20¼	5¼ ..	7 8 ..	9 14
1, H. F. Wild (Fawn doe)	21	5¼ ..	9 12 ..	9 14
2, J. Pritchard (Grey buck)	21	5 ..	6 3 ..	4 5
WEIGHT.				
1, F. Smallman (Black and White buck)	20½	5 ..	11 5 ..	10 12
2, R. Pugh (Yellow and White doe)	20⅜	5 ..	10 2 ..	8 13

EXTRA PRIZE.—Silver Cup for Weight; also for all Properties, K. Smallman.

JUDGES.—Mr. J. Newton, Mr. H. Hall, and Mr. H. Hatwood.

TEACHING A CANARY TO PIPE.

IT may interest some of your Canary-fanciers to hear that a Canary is capable of learning to pipe like a Bullfinch. I had a pair of Canaries from Malta, given to me by a soldier's wife four or five years ago, and by frequently playing a little German air ("Trab Trab") this was caught up and sung so perfectly, that persons in the garden could not always distinguish the song of the bird from the organ. He lost his mate last summer, and though there was another pair in the same cage (a large one), he moped and was silent for several months. I gave him another mate and the whole cage to himself a month ago; he very shortly recovered his spirits and his song. I have more than a dozen birds of various kinds in a different compartment, which when singing all together one would suppose would be rather confusing, but I distinguish his sweet pipe in the midst of them. By reminding him occasionally of the air, and giving him a few hempseeds for proficiency, he remembers it perfectly, and generally greets me with it the first thing in the morning, or if I go to him and invite him. On second thoughts, my first bird died after learning the song and helping to educate his firstborn.—SOUTH WALES.

[The above communication is most interesting, but it ought not to surprise; for if a Canary can be taught one description of song which in its endless variety defies any but a carefully educated ear to detect its constituent parts, why should it not learn another in the shape of a simple air? But more marvellous still, I know of two instances, each authenticated beyond a doubt, in which Canaries have been taught to speak. —W. A. BLAKSTON.]

"B. & W.'s" APIARY IN 1871.

I BEGAN operations among my bees on the 22nd of May, by driving my pure Italian stock B. The swarm was put in the same place in a hive with some comb in it. Unaccountably this hive swarmed naturally on the 4th of July, a tiny swarm, before the bees had half-filled their box with comb. This was hived in a small box and put on my garden stand in place of H (see page 407 of last volume). It remains there still, supported entirely upon sugar. My notion is, that B, when driven on the 22nd of May, had an old Italian queen (imported), who must have died some time in June, for I observed a royal cell in it. Further, I am of opinion that one of the youthful princesses must have led off the July swarm. However this may have been, both are alive, but the bees in the swarmed stock B are the strongest; both, too, have well-marked Italians throughout. The original parent hive, out of which I drove the first swarm on the 22nd, after taking out a piece of brood-comb, I put in the place of D, a very strong degenerate hybrid stock, which I shifted into the fowl-house to the vacant place N. Out of the piece of brood-comb (pure Italian of course), I made up a swarm to put in place of C, which I also shifted on the 23rd of May to the fowl-house, where it now stands in place of L, previously sold.

It was the shifted stock N whose queen, as I believe, migrated the same or the following day back to her old stance in the bee-house (D), and led off a swarm therefrom on the 24th of May, about which some controversy arose in the summer between myself and your esteemed correspondent, Mr. Lowe. This gentleman positively denied—too positively as I ventured to think—that queens ever take airings in this sort of way. The occurrence which I recorded was differently, and, no doubt, reasonably accounted for; but it still remains an open question. At page 499 of last volume will be found a corroboration of my own view, in an extract from the American "Bee-keeper's Journal."

This swarm with its degenerate hybrid queen and bees I placed in an empty hive on the vacant stance A, in the bee-house. There it remained degenerate as ever; whereas, the artificial stock D, out of which it swarmed, abounds in beautifully-marked Italians, and has, I doubt not, a young queen raised out of the brood-comb, which I gave them only two days before the degenerates quitted it.

June 7th.—A second awarm issued from N, which was hived and placed on the garden stand the same day, and is numbered H2. These are still alive and well.

June 8th.—A second swarm issued from D, located on garden stand, but being overlooked died of starvation in November.

June 30th.—A fine natural swarm issued from F, which has an imported Italian queen, the last Mr. Woodbury procured for me. It is still doing well as J2, on my garden stand.

July 8th.—A fine swarm out of a nameless stock with a pure-bred Italian queen hived as I, in the same place.

July 10th.—A second swarm out of F, put on garden stand and labelled J, by dint of feeding is still alive.

July 13th.—The last swarm of the year came off to-day, a maiden swarm, out of A, in bee-house. I gave them a super with some 8 lbs. of honey to begin with. They are still alive and well. This hive, I2, makes the sixth on my garden stand.

It will be seen that my apiary at the close of the year numbered fifteen stocks, which stand as follows :—

BEE-HOUSE.

A. Degenerate hybrids. Queen b. July, 1871.	B. Pure-bred Italian. Queen b. June, 1871.	C. Same as B.
D. Same as B.	E. Hybrid Italian. Queen b. 1870.	F. Same as B. Queen b. July, 1871.
	G. Nil.	

GARDEN STAND.

H. Pure-bred Italian. Queen imported, 1868, or pure-bred, 1871, June.	I. Pure-bred Italian. Queen b., 1868.	J. Pure-bred Italian. Queen b. July, 1871.
H2. Hybrid queen degenerate, b. June, 1871.	I2. Degenerate hybrid. Queen b. 1870.	J2. Imported queen, 1870.

FOWL-HOUSE.

K. Nil.	L. Hybrid Italian.	Queen b. 1870.
M. Pure-bred Italian. Queen b. 1870.	N. Degenerate.	Queen b. June, 1871.

Besides those mentioned above, I had other swarms which I gave away or returned to their hives. The year with me has been prolific in swarms beyond all my experience. Of honey there has been none to speak of. I obtained a fine super from M, containing about 25 lbs. nett, also about 8 lbs. from C, 7 lbs. from D, and 4 lbs. from E, total 44 lbs. of honey, which is the smallest honey harvest that has been gathered-in by me since

1861. Only one of my fifteen stocks is wealthy enough to survive the winter and spring without feeding. Of the rest I fear half will die, not from want of attention, but from the severity of the weather, which has made me cease feeding altogether earlier than I should have done.—B. & W.

OUR LETTER BOX.

Bristol Show.—Mrs. F. S. Arkwright, Sutton Scarsdale, Chesterfield, writes to us that our reporter was quite wrong in stating that her first-prize Dorking cockerel was an old bird. She states, and we are sure truly, that it was hatched in March last. It was claimed at Bristol at the catalogue price, ten guineas.

Sunderland Poultry Show (*C.*).—Not being advertised we conclude it was a small local show.

Plymouth Show (*J. Long*).—We made no inferences, nor can any be drawn fairly from what we said. We do not know anything about your connection with a contemporary.

Paisley Ornithological Association's Show.—The reporter has omitted to state, that for the best Gold-pencilled Hamburgh cock, the special prize was awarded to Robert Macnab, Cardonald by Govan.

Poultry (*G. Dyson*).—No such periodical. "The Poultry Book" is published at our office, and can be had free by post for 6½*d.* postage stamps.

Egg-eating Hens (*A Subscriber*).—There are only two modes of prevention—watching the laying hen and taking the egg, or having the trap nest depicted on p. 330 of our last volume.

Exchanges (*H. Welsh*).—We insert brief notices of exchanges desired for one shilling each.

Brahma Pullet Dead (*E.*).—There was a stoppage. You did right in administering the castor-oil, but in our opinion the gin was injurious. You may accept it as an axiom that wine or gin should only be administered in extreme cases, when nothing can increase the danger, and then they should be given by means of bread soaked in them. Our impression is, that on careful examination you will find an egg in the passage so fixed that it impeded the exercise of all natural functions. Had that been assisted by means of a feather dipped in oil, the bird would probably have been alive and awfully emptied in increasing the food of man in the shape of eggs.

Cochin Chinas not Laying (*E. C. P.*—It may be you have been deceived in the age of your fowls without its having been done wilfully. We do not believe a Cochin can go to ten months without laying, and it is only the exception when they lay at five. Laying in the winter is a question of age, not of breed. There is no breed whose province it is to lay out of season. Laying in the winter in these latitudes (and in others that are called more favoured) is entirely a question of months and not race—and only pullets lay in the winter. You are to have a little patience, breed some chickens this year, and you will see you will have eggs from pullets before they are ten months old. We have no fault to find with your feeding, except that we would abjure the cat's meat. Instead of a pole for going in and out of the house, give them a hole in the door, supply them two or three times per week with heavy sods of growing grass. Let them have road grit to back and dust in; and if they do not eat their eggs, they will soon do away with your grievance. What is the floor of their roosting house?

Black Bantam Points (*Inquirer*).—You are altogether wrong. The only Bantam that must have the drooping wing is the Sebright. It is part of the breed that they should have it, but in no other bird is it required. We have not to take up cudgels for judges, and we know in the present day, when their name is legion, there are curious and inexplicable awards, but we are not aware there has been any change of opinion among the admitted judges. Black and White Bantams were shown before the Game were manufactured. It was always a positive point that in both breeds the birds should be smart, clean, earlobe small, and that the cocks should have very long sickles. These do not match with drooping wings. The carriage of a Sebright, with the tail of a Black or White, would cause the latter to be thrown over his back, and the bird would be disqualified as squirrel-tailed. Black Bantams should be small; they should be neat and close in feather; quite black, save that they may have gloss on their feathers; taper legs not too stout, faultless small white deaf ears, smart carriage, and the cock should have long streaming feathers, carrying his tail rather low.

Turkey Poupy (*A Young Beginner*).—Give your Turkey some bread soaked in strong beer. Give her onion tops in her food, and administer every nigh. till she begins to mend two pills of camphor, each the size of a garden pea). Your Brahmas cannot take the roup from her. They are not subject to it. Their complaint is, "wasting." They rarely have it, and it is not infectious. If they are failing, give them bread steeped in strong beer. Meat and other stimulating food will make birds lay; but it is a lamentable process, the number of eggs is lessened rather than increased, and the bird is often acurably injured.

Game Bantam Points (*Spes*).—The points of a Game Bantam should be identical with those of a Game cock. The only difference between the two that is permitted is that of size. Sharp, clear, snake-like head, scanty hackle and saddle, drooping tail rather than carried upright, hard plumage, wing clipped up to the body, well placed spur, absence of duck foot, moderate thigh. All these points are required in a Game Bantam. A Game fowl with a double comb should be as rare as a man with two heads.

Black Polands' Crests—Minorcas (*H. Bovvr*).—The only way in which you can keep the top-knots of your Polands clean, is to fasten them up with an elastic band. They not only get wet when they are unconfined, but they become heavy and fall around their eyes whenever the fowls eat or drink. The confinement you speak of will do very well for a temporary residence, for instance during bad weather, but not for a continuance. What is the flooring of it? The Minorcas are extinct; they were supposed to be red-faced Spanish, and were common in Devonshire. A White Dorking cock and hen weighing 16 lbs. would be large birds of the breed.

Pigeons' Nest Pans (*New Subscriber*).—We do not know where the earthenware pans you mention are to be had. We do not think they are made now.

Throat Rattle (*Light Brahma*).—A table-spoonful of castor-oil given to the hen two nights in succession, followed by feeding for a day or two on bread and ale, with a pill of camphor night and morning.

Aviary for Pigeons (*Yorkshire*).—There would seem to be no reason why you should not make the roof of glass, as we presume your birds are only to be in the place by day, and not to breed in it. If the latter it would be too hot in summer. You will, of course, have open wirework at the side, for they want air as well as light and sunshine. The usual plan is to have the roof of corrugated iron, with a window in it, and the side wire, either end being close, but much depends on the position of yours, and the use you put it to. A very shallow vase in the centre, or one nearly filled with gravel, and then water on the top would be nice as a bath, and ornamental likewise.

Gold Fish in an Aquarium (*Hebe*).—Whether in an aquarium or in a glass globe they require feeding; the following, published in an American paper, coincides with our own experience. "I have kept gold fish for two years or more. The first six months, or thereabouts, I lost eight fish by following the instructions of parties from whom I purchased. I then thought I would use my own judgment in the matter and see if feeding would kill them, as I had been informed by the aforesaid dealer. I now have five gold fish, three minnows, one crawfish or crab, and four turtles in an aquarium 30 by 16 inches and 12 inches deep. I have on the bottom about 2 inches of fine lake sand, and scattered here and there stones built up or piled so as to form run-ways. I feed them about twice a week with fresh beef, cut into small pieces and dropped on the water, when, quick as a trout after a fly, they will seize the pieces until satisfied. I have often seen them jump 3 inches above the water trying to catch a fly on the side of the glass. I keep a small plant of Calla in a pot standing in the water all the time; some say it helps to keep the water pure. I change and renew the water twice a-week during them winter and three times during the summer."

Dying Grasses (*A. S.*).—We cannot give details of the processes for various colours. The readiest way would be to use the dying fluids advertised. We forget the proprietor's name, but any chemist could tell you.

METEOROLOGICAL OBSERVATIONS,

Camden Square, London.

Lat. 51° 32′ 40″ N.; Long. 0 8′ 0″ W.; Altitude 111 feet.

Date. 1872. Jan.	A.M. Barometer at 32° and Sea Level.	A.M. Hygrometer. Dry.	A.M. Hygrometer. Wet.	A.M. Direction of Wind.	A.M. Temp. of Soil at 1 ft.	In the Day. Shade Temperature Max.	In the Day. Shade Temperature Min.	In the Day. Radiation Temperature. In sun.	In the Day. Radiation Temperature. On grass	Rain.
	Inches	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 10	30.124	84 2	84 2	S.W.	87.8	45.0	31.4	45.0	28.5	0.220
Th. 11	29.835	45 0	44.6	S.	89.9	54.3	33.4	66.7	30.6	—
Fri. 12	30.165	37.5	37.3	W.	39.8	46.8	34.7	48.3	29.8	0.010
Sat. 13	29.381	46 8	46.1	S.	40.9	51.5	36.6	50.8	33.8	0.310
Sun. 14	29.922	40 8	40.1	W.	42.1	46.6	37.6	70.6	34.2	—
Mo. 15	30.120	38.8	38.8	W.	40.8	47.6	27.4	51.2	24.6	—
Tu. 16	29.959	32.3	32.3	S.	38.6	44.5	28.2	50.8	27.3	0.80
Means	30.000	37.9	37.6		39.8	45.6	32.8	55.4	29.8	0.57

REMARKS.

10th.—Very dense fog all day.

11th.—Very wet in the morning, rather better in the afternoon, and clear in the evening.

12th.—Fine morning and early afternoon, dull later, and rain at 10.30 P.M.

13th.—Dark and rainy in the morning, and partially so all day.

14th.—Particularly bright in the morning, slight shower about noon, fine in the afternoon and evening.

15th.—Fine with white frost till 8.30 A.M., then foggy till 10.30 A.M., when the sun got through the fog for a short time, but thick again in the evening, and the same at Kennington, though bright in some parts of London, and at Chelsea and Pimlico.

16th.—Dull morning, occasionally bright during the day, but cold throughout.

Another damp, thick, muggy week; dense fogs on 10th and 15th; sharp frost on 15th.—G. J. Symons.

COVENT GARDEN MARKET.—January 17.

Superior qualities of goods are now in better inquiry; Asparagus, Sea kale, Dwarf Kidney Beans, and Cucumbers taking the lead in the demand. Rough produce is heavily supplied, and large quantities are disposed of at very low rates. Cornish Brocoli is coming in good, selling at from 2*s.* to 4*s.* per doz. by the crate. Imports of foreign produce are much lighter.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples ½ sieve	2 0	to 4 0	Mulberries lb.	0 0	to 0 0
Apricots doz.	0 0	0 0	Nectarines doz.	0 0	0 0
Cherries lb.	0 0	0 0	Oranges ₱100	4 0	10 0
Chestnuts bushel	10 0	20 0	Peaches doz.	0 0	0 0
Currants ½ sieve	0 0	0 0	Pears, kitchen doz.	2 0	4 0
Black do.	0 0	0 0	dessert doz.	5 0	8 0
Figs doz.	0 0	0 0	Pine Apples lb.	4 0	7 0
Filberts lb.	0 6	1 0	Plums ½ sieve	0 0	0 0
Cobs do.	0 6	1 0	Raspberries lb.	0 0	0 0
Grapes, Hothouse lb.	4 0	8 0	Strawberries lb.	0 0	0 0
Gooseberries quart	0 0	0 0	Quinces doz.	0 0	0 0
Lemons ₱100	7 0	10 0	Walnuts bushel	10 0	25 0
Melons each	2 0	8 0	ditto ₱100	1 0	2 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes doz.	0 0	to 0 0	Leeks bunch	0 3	to 0 6
Asparagus ₱100.	5 0	8 0	Lettuce doz.	0 1	0 2
Beans, Kidney per 100	3 0	4 0	Mushrooms pottle	1 0	2 0
Broad bushel	0 0	0 0	Mustard & Cress punnet	0 2	0 3
Beet, Red doz.	0 3	0 4	Onions bushel	2 0	3 0
Broccoli bundle	0 9	1 6	pickling quart	0 6	0 8
Brussels Sprouts ½ sieve	2 0	3 0	Parsley per doz. bunches	3 0	4 0
Cabbage doz.	1 0	1 6	Parsnips doz.	0 9	1 0
Capsicums ₱100	0 0	0 0	Peas quart	0 0	0 0
Carrots bunch	0 6	0 0	Potatoes bushel	2 0	3 6
Cauliflower doz.	3 0	6 0	Kidney	3 0	5 0
Celery bundle	1 6	2 0	Radishes doz. bunches	0 6	1 0
Coleworts doz. bunches	2 0	4 0	Rhubarb bundle	1 0	1 6
Cucumbers each	1 0	2 0	Savoys doz.	1 0	1 6
pickling doz.	0 0	0 0	Sea-kale basket	1 0	2 0
Endive doz.	2 0	4 0	Shallots lb.	0 4	0 6
Fennel bunch	0 3	0 0	Spinach bushel	3 0	4 —
Garlic lb.	0 3	0 0	Tomatoes doz.	0 0	0 0
Herbs bunch	0 3	0 0	Turnips bunch	0 3	0 —
Horseradish bundle	3 0	4 0	Vegetable Marrows doz.	0 0	0 0

WEEKLY CALENDAR.

Day of Month	Day of Week	JANUARY 25—31, 1872.	Average Temperature near London.			Rain in 43 years.	Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	Days.	m. h.	m. h.	m. h.	m. h.	Days.	m. s.	
25	Th	Conversion of St. Paul.	43.4	32.3	37.9	21	51 af 7	35 af 4	13 af 4	6 af 8	○	12 31	25
26	F		45.5	32.3	38.9	20	50 7	37 4	19 5	38 8	16	12 44	26
27	S		44.6	31.2	37.9	20	48 7	39 4	28 6	4 9	17	12 57	27
28	Sun	Septuagesima.	45.8	30.8	38.3	21	47 7	40 4	41 7	24 9	18	13 9	28
29	M		45.6	31.5	38.5	18	46 7	41 4	55 8	42 9	19	13 20	29
30	Tu		44.7	32.2	38.5	22	45 7	43 4	5 10	58 9	20	13 30	30
31	W	Hilary Law Term ends.	44.9	30.9	37.9	20	43 7	45 4	21 11	14 10	21	13 39	31

From observations taken near London during forty-three years, the average day temperature of the week is 44.9°; and its night temperature 31.6°. The greatest heat was 57°, on the 29th, 1863; and the lowest cold 8°, on the 30th, 1857. The greatest fall of rain was 0.70 inch.

CULTURE OF THE HYACINTH AND LILY OF THE VALLEY.

THE early part of the year being the time when a general collection of Hyacinths requires attention, a few remarks on the culture of this, the grandest of all spring flowers, will not be out of place. The mistake is sometimes made of leaving the pots out too long in the plunging material, and sometimes of not plunging them in a proper position. I have seen Hyacinths potted at the usual time (about the end of October), and the pots placed under the stage of the greenhouse, and carelessly covered over with leaf mould, ashes, or any similar material that was at hand. Now I do not think a more unsuitable spot could be selected for them, as some of the pots may be deluged with water, others may not receive a drop, whilst in many respects the place certainly is not one that should be chosen for such a purpose. The best position for them after they are potted is an exposed one out of doors, on a hard, wormproof bottom, the pots being covered to the depth of 6 inches with cocoa-nut fibre refuse, spent tan, or leaf mould, but not ashes. They should be removed to some glass structure by the second week in January, though some, in order to retard them, allow them to remain until the end of February. The spikes are thus sometimes injured by being allowed to grow so long in that condition, and then the seedsman who supplied the bulbs is blamed. Like "Stiff Soil," in the number for December 21st, in reference to his Gladiolus roots, "I blamed the bulbs, the vendor blamed the soil." So with our seeds. When they do not vegetate freely we say, "That must have been bad seed Mr. —— supplied me with this year;" when probably the birds, which have a keen eye for such things, observed the young seedlings before we did, and picked them out as they came through the ground.

The best position for Hyacinth pots when removed from the plunging material is close to the glass of a low span-roofed pit, heated with hot-water pipes, so that the temperature cannot fall below the freezing-point. Should it not be convenient to remove them to such a structure, they will do in a cold frame; but the pots must be plunged, and double mats must be thrown over them if severe frost set in. A small pot should be inverted over the crown of the bulb, should remain for a week, and then be gradually removed, so that the incipent spike may receive no check to its growth. After this, air must be abundantly admitted to prevent the spikes from becoming in any way drawn. If the bulbs throw up two or three spikes these must be removed, allowing only the strongest to remain—that is, if they are required for exhibition; but if required for home decoration, all the spikes that are formed may be allowed to remain. Where a continued display is required, successive batches will require to be told off to the forcing pits. The temperature should be kept rather low at first, but gradually increased until a regular night temperature of 65° is reached.

Sometimes there is no forcing pit convenient; indeed, I generally place all such subjects on shelves near the glass in Pine or Cucumber houses; but where it is necessary to remove plants from a cold pit into a temperature of 60° or 65°, it is better first to place them in a hotbed where they can have a little bottom heat to cause the formation of a larger quantity of roots in proportion to the top, and thus prevent failure. When the first flower or two on a truss has fully expanded, the pots should be removed to the greenhouse and conservatory, which ought to have a rather higher temperature when plants are being removed to them from the forcing houses.

Lily of the Valley is one of the sweetest little gems of the early spring months, and well adapted for early forcing. The roots, if intended to be forced in large quantities, ought to be brought in during the early part of November, and potted at once, as early potting insures a larger formation of roots, and fits the plants better for early forcing. When required for very early forcing, a house or pit, with a little bottom heat and an atmospheric temperature of 45° at night, is best. Where this cannot be obtained, the pots should be placed in a dung frame with a gentle bottom heat, or a bed formed entirely of leaves. This is necessary to bring the roots into action before unduly exciting the crowns, and if this is not done the flower-trusses are thrown up without leaves, and the plant thus robbed of its beauty. To be sure of obtaining leaves, I force the old plants which flowered in pots the previous season to throw up plenty of leaves, but few flowers.

Success in forcing all classes of spring flowers is attained by exciting vigorous root-action before the plants are placed in a high temperature; and just in proportion as this is observed so great will be the measure of the success. Judicious watering is likewise an important consideration.—J. Douglas.

BROMELIACEOUS PLANTS.—No. 1.

It is a source of great pleasure to me, an enthusiastic admirer of the order Bromeliaceæ, to find the public again taking an interest in this far-too-much-neglected family of plants. In my earlier gardening days these plants were highly prized, and I have little doubt but that I shall soon see them again receiving the care and attention to which their great beauty deservedly entitles them. I am led to this hopeful state of mind by seeing them more frequently in amateurs' houses, and from the frequent recent introductions of new species, in which the past year has been exceptionally prolific. I think, also, that the Royal Horticultural Society should take them under their special care and offer prizes for them, for, although I am quite aware that such a proceeding would not enhance their beauties, it would undoubtedly increase and improve their cultivation. This would be productive of a greater number of amateur admirers, and a demand having been created, plant-collectors would find it worth their while to send us home many new kinds which have hitherto been neglected for more profitable plants. In order, therefore,

to draw the attention of some of the readers of the Journal who have hitherto neglected the Bromeliads, to their many claims to notice, I purpose giving a few plain and practical descriptions of some of the most beautiful kinds now to be found in our gardens, commencing with *Vriesia brachystachys*.

This very elegant species has been chosen for the first plate of the new series of the "Floral Magazine," and a very beautiful object it is when five or six scapes are seen together. My attention was first called to this plant about three years ago when visiting some of the principal German gardens, and although it was not in first-rate condition at that time, I saw sufficient of it to induce me to suppose that it would develope greater beauties under a more liberal course of treatment, and I accordingly procured it. I have now no hesitation in saying it deserves to be grown in every collection, however small.

The plant I have introduced to my readers' notice is dwarf and compact in habit; the leaves are light green, sheathing at the base, and arranged in a rosulate manner, so as to give it a vase-like appearance. The flower-spike is erect, produced from the centre of the plant, and bears upon its summit a distichous scape of narrow boat-shaped bracts, the upper half of which are dark green with a crimson base. The orange-yellow flowers vary from six to twelve in number, are all longer than the bracts, crimson at the base, and tipped with black at the apex. So persistent are these flowers and bracts, that the plant when in bloom retains its peculiar and striking contrast of colours for many weeks, and may be placed without injury in a vase for the decoration of the drawing-room or a lady's boudoir. I think none can gainsay my assertion that it deserves the attention of every plant-grower.

The cultivation of Vriesia brachystachys, like that of the majority of the order, is extremely simple. They naturally lead an epiphytal life, and this fact must be borne in mind by amateurs when placing them, for their own personal convenience, in flower-pots. In such a state good and thorough drainage is not only essential to their well-being, but actually to their very existence, and I invariably find when any of them in pots get into bad order, that placing them on a block of wood, and then suspending them in a moist warm atmosphere, is sure to restore them to their wonted vigour. The soil for this plant should consist of two parts good leaf mould, two parts peat, and one part each of light loam and sand. Before leaving this subject, however, I must just revert to a practice too much in vogue with gardeners, and that is turning the plants upside down to empty the water from the natural receptacles formed by the overlapping of the base of the leaves. Nothing in my estimation can be more prejudicial to the health of this plant than such a practice, for I find that water standing in these is the actual life of the plant, and therefore I invariably make the crown of the plant the receptacle for all the water given. That portion which runs over and trickles down the plant is usually sufficient for the roots.—EXPERTO CREDE.

THE ACTION OF NITROGEN GAS ON PLANTS.

By CUTHBERT W. JOHNSON, F.R.S.

THE action of the nitrogen of our atmosphere upon vegetation has long been a moot question with chemists. That this gas should form 79 per cent. of the air we breathe, that it should be a constituent of so large a proportion of vegetable substances, and yet that those vegetables should not derive any portion of it from the atmosphere, has ever been regarded as doubtful. It is true that the most careful chemical researches have hardly detected any absorption of nitrogen gas by plants. The different very valuable researches on this important inquiry were some time since described by Professor Way (*Jour. Roy. Ag. Soc.*, vol. xvi., p. 249). If, however, the absorption of the nitrogen gas of the atmosphere is still a moot point, there is yet no doubt of the value to vegetation of the nitrogen contained in the nitric acid, and the ammonia which is contained in rain water, and which Way calculates to be annually equal per acre to the manuring power of 1 cwt. of guano. The agriculturist, adds the professor, "may profit by this newly discovered bounty of Nature if he will take full advantage of the atmospheric manure by means of drainage, which promotes the equal flow of water through, instead of over, his soil, by deep cultivation and thorough pulverisation of the land, which brings every part of it into contact with the air. The atmosphere to the farmer is like the sea to the fisherman; he who spreads his nets the widest will catch the most."—(*Ibid.*, p. 266.)

But then there are certain phenomena which induce the suspicion that in some way, either direct or indirect, the atmospheric nitrogen gas is made subservient to the growth of plants. Thus nitric acid, which is composed of nitrogen and oxygen, is found in rain water, and also ammonia (composed of nitrogen and hydrogen), is as generally present. As, then, the combination of nitrogen with oxygen forms nitric acid, and, when united with hydrogen, ammonia, both very valuable fertilisers, the inquiry naturally suggests itself as to whether these gases might be profitably combined by artificial means. An eminent civil engineer, Mr. James Nasmyth, has lately suggested that this might be accomplished by percussive compression (*Jour. Roy. Ag. Soc.*, vol. vii., p. 436). He observes in his paper, which is introduced by some remarks by Mr. James Caird, and has appended to it an outline of a suggested gas-compressing machine, that "Nitrogen, although a most abundant constituent element in our atmosphere, does not appear to act so readily as a fertiliser as when it is presented to the roots of plants in combination with some other substance, from which combination plants abstract the nitrogen in a manner most effectually conducive to their fertility.

"All animal substances, especially when such are in a state of decomposition, are well known to be very effective as manures. This arises from the fact that in that condition they contain ammonia, which, being composed of hydrogen and nitrogen, the roots of the plants decompose the ammonia and appropriate the nitrogen greedily, as their most favourite food, and hence its efficacy as a fertiliser.

"Reasoning on this subject full forty years ago, and considering the inexhaustibleness of the store of nitrogen we possess in our atmosphere, it occurred to me that, could we but devise some means of laying hold of this nitrogen of the atmosphere, and fixing it in combination with some other element, so as to enable us to present the result directly to the roots of plants, we should, in that way, supply them with their most effective food as manure, derived from an inexhaustible source around us, instead of having to obtain the desired nitrogen, as we do at present, by going all the way to Peru for it in the form of guano, which owes its efficacy as a fertiliser chiefly to the presence of ammonia, from which the plants, by means of their roots, abstract their favourite nitrogen. Reasoning on this subject, as I have said, it occurred to me that if by some mechanico-chemical process we could manage to knock the nitrogen and oxygen of the atmosphere into chemical combination, and at the same moment combine the so-produced nitric acid with some mineral substance which would permanently fix the combination in a portable form, we should thereby get hold of a source of fertilising power as inexhaustible as it would be effective. In following out this train of reasoning, I called to mind the fact that traces of nitric acid are found in the rain that falls during thunderstorms; and the observed increase of fertility which follows such thunderstorm rain is due, it is supposed, to the nitrogen carried to the roots of plants by the minute admixture of nitric acid in the rain which falls on such occasions.

"Also let us bear in mind the wonderful efficacy of a blow, or percussive action, in bringing about a true chemical combination between certain elements which otherwise might lie for ever in close juxtaposition without ever entering into chemical union. The efficacy of percussive force in this respect is well known in the case of all fulminating compounds. Viewing the thunderstorm effect above referred to as a percussive compressional agency, it occurred to me that we might attain the grand object of chemically combining the nitrogen and oxygen of the atmosphere, for the service of agriculture, by subjecting atmospheric air to exceedingly violent percussive compression in the presence of some cheap mineral substance which had a strong affinity for the nascent nitric acid, which I imagine would be the immediate result of such violent percussive compression. Dry slacked lime would appear to be the most suitable substance for effecting this object: the result would be nitrate of lime. Should we thus be so fortunate as to knock into combination the constituent elements of the atmosphere, and so produce a fertilising agent of the most potent efficacy from an inexhaustible source at home, instead of, as at present, going for it, in the form of guano, all the way to Peru, a great result might ensue."

BROCCOLI.—The Cornish Broccoli trade of 1872 has commenced in earnest. During the first fortnight of this month upwards of 25 tons have been sent away by rail, principally to

London. Price from 1*s.* 6*d.* to 2*s.* per dozen heads. £60 have been given this season for one early acre.—(*Times.*)

HISTORY OF THE GLASTONBURY AND BENEDICTINE PEARS.

I WISH to make a few more remarks on the Glastonbury Pear which may help to settle two points. Firstly, Its identity with the Esperine appears to be very doubtful; and secondly, Mr. Sampson's Benedictine and the Glastonbury Pear are the same. From your editorial remarks I learn the Esperine could not well have been distributed in this country before 1850, or, in other words, it was not known to be cultivated in England thirty years ago. There can be no doubt the Glastonbury Pear tree is older, and for twenty years has been grown against a garden wall by a resident in the town, who has known the original tree thirty years. When I sent you the fruit in 1865, I ought to have stated the Pear tree was growing at Glastonbury, and not, as you supposed, at Edgarley from whence I wrote. My first impression was the tree had never been grafted, but now I think otherwise.

The original Pear tree now promises to bear a heavy crop of fruit; should it do so I will forward some to your office for comparison with those grown in a garden, also some of the leaves. The tree stands in a hedge dividing two Apple orchards; near it are two Elms more than forty years old, and in the same hedge are several Pear trees, never grafted, and the fruit worthless. I consider they were stocks planted about the same time as the Apple trees, and were intended to be grafted, but only one was done, the Glastonbury Pear. The Apple trees in both orchards are about the same age, certainly not less than forty years.

When fruit are sent for identification it should be stated whether grown on a standard or against a wall, and the aspect, as exposure to a warm sun greatly adds to the colour of the fruit. The fruit I sent to Mr. Rivers were grown against a wall and highly coloured, much more so than those sent to you in 1865, which were grown on a pyramid. I make the above remark, as you notice a difference between the Benedictine, which you say resembles the Brown Beurré, and the Glastonbury Pear; they may not have been grown under the same conditions.

Previous to my sending the Pears to Mr. Rivers, some were sent to Mr. Cramb, who named them Brown Beurré, and his opinion was also confirmed by some one who saw the fruit. Mr. Lovell, in 1862, obtained grafts either from the tree in the orchard hedge, or from Mr. Chapman, who was the first to bring the Pear into notice, and had then grown it against a wall for many years. In 1865, as already stated, I sent you two Pears which were grown in Mr. Lovell's garden, and as your report was then so favourable (and which I have sent to Mr. Rivers with the Pears), I largely grafted the variety in 1866 and 1867, as I wished the Pear to be distributed, and mentioned it to two nurserymen. About that time, or a little later, Mr. Lovell sent to Edgarley for some of the grafts, which he had promised to Mr. Sampson. I was pleased to give them, as I considered there was a fair chance of the Glastonbury Pear being distributed. Last February Mr. Lovell called my attention to an article in the *Gardeners' Magazine*, page 84, and wished me to answer it, as it was very likely to mislead the public. No doubt that artiele if not noticed helps to establish a new Pear, and to confuse the identity of the Benedictine and Glastonbury Pear. The followiug is the article:—

"Among new fruit now in course of being distributed, there is another west-of-England Pear named the Benedietine. This is in course of distribution by Mr. Thomas Sampson, Preston Road Nurseries, Yeovil. This variety was raised from a cross between Huyshe's Princess of Wales and Van Mons Léon Leclerc, by Mr. W. Lovell, of Glastonbury. The fruit when ripe has a handsome appearance, and is nicely tinted with red on the side towards the sun; the flesh is melting, rich, and juiey, the flavour said to be very fine, and with an exquisite aroma. It is a midwinter Pear, in use from November to the end of January. It takes its name from this, that the garden of Mr. Lovell in which it was fruited adjoins that of the Benedictine Monks at Glastonbury. Mr. Lovell has placed the entire stock in the hands of Mr. Sampson for distribution."

Many grafts and trees I have given away in this neighbourhood, and should any of your readers wish for grafts I shall have much pleasuro in sending some. There is no reason why the Pear should be called Benedietine, and until the Pear is identified I would suggest that it be called the Glastonbury Pear, a title which at present it has a right to, and is known by in the neighbourhood. The Pear is ripe towards the end of October, and may sometimes last until the end of November.—JOHN ALBERT PORCH, *Edgarley, Glastonbury.*

It is always agreeable to see a controversy conducted with good nature: under such feelings I venture to inquire into the origin of the Benedictine Pear. I do not know Mr. Lovell. Mr. Sampson I know as an honourable nurseryman who would not knowingly deceive the world. According to what is known of the origin of this Pear it was raised from a cross between Huyshe's Prince of Wales and Van Mons Léon Leclerc, both fine Pears. The former was sent out in 1860, or about that time, as maiden trees on the Pear stock. Such trees would not bear fruit till 1864 or 1865; the young seedlings would, say, be in a growing state in 1865 or 1866, and, from my long experience, they would not bear fruit till eight years old, or rather ten years old, as it is very rare for a seedling Pear in this country to bear under that period. Now, according to the lowest calculation, taking eight years, the trees would not bear till 1872. The Benedictine Pear has been under cultivation two or three years—I received my trees in the autumn of 1870—this seems to me to reduce the bearing state of the seedlings to an incredibly short period. I write this merely as an inquirer, having taken your statement (page 58) as a fact. There has been, probably, some mistake as to its origin which may be at once explained.—THOS. RIVERS.

[Mr. Porch has been kind enough to send us two large pieces, apparently two large pyramids, of the Edgarley Foundling or Glastonbury Pear, by which we are somewhat confirmed in our suspicion that the Edgarley and the Benedictine Pears are distinct sorts, and that by some means two varieties have got together under the same name. In our notes on Benedictine we remarked that it "very much resembles Brown Beurré in form and colour;" and it is remarkable that, according to Mr. Porch, that careful observer Mr. Cramb should have come to the same independent conclusion. That the doubts we expressed as to the Pear sent to us in 1865 by Mr. Porch, and which we named Edgarley Foundling, is the same as that sent to us last year by Mr. Sampson under the name of Benedictine, are well founded has some confirmation from the two specimens of the tree now sent us. One is much stronger and more robust than the other; the colour of the shoots is a bright, clear, yet deep reddish brown or mahogany colour, thickly strewed with large distinct clear freckles (*lenticelles* as Mr. Rivers calls them), and the buds prominent. The other is not so thick or robust in growth, the shoots of a greyish olive colour, freckles small and sparse, and not much lighter than the colour of the wood. We draw no other conclusion from these facts than that they confirm our suspicion, and that probably the mahogany-wooded variety is Brown Beurré. We leave others to investigate the matter farther.—EDS.]

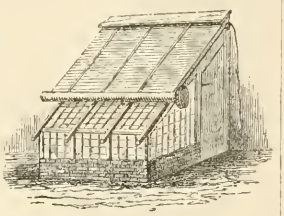
COLD PRODUCED BY RADIATION AND EVAPORATION.

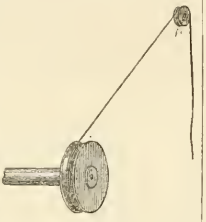
LETTERS have been received by us so frequently of late complaining that the heating apparatus employed was not quite sufficient to maintain the required temperatures, that we feel convinced an attention to the means of checking radiation and evaporation from the glass of the stove, greenhouse, conservatory, and pit would be an effective resource. Glass radiates heat very rapidly, and during a cloudless night it quickly, and to a very low degree, cools the air in contact with it. Dew is deposited upon the glass, and then heat has to be supplied for the evaporation of that. Clouds reduce the radiation from the glass of our garden structures, and much more effectively do coverings outside but near the glass. For example, a thermometer placed upon a grass plat, exposed to a clear sky, fell to 35°; but another thermometer, within a few yards of the preceding, but with the radiation of the rays of heat from the grass checked by no other covering than a cambric pocket-handkerchief, declined no lower than 42°. No difference of result occurs whether the radiating surface be parallel or perpendicular to the horizon; for when the mercury in a thermometer, hung against an openly exposed wall, fell to 38°, another thermometer against the same wall, but beneath a web of gauze stretched tightly at a few inches' distance, indicated a temperature of 43°.

For this reason, sustained as it is by the experience of gar-

deners, we recommend the more general adoption of outside blinds. They are useful for shading in summer as well as for retaining heat in winter, and at this season they may be used even during the day on the roofs of many of our glazed structures without injury to their tenants. The following is an arrangement we would recommend.

The blind is fixed at the top of the roof, the roller passing up and down when required, as shown in the accompanying drawings. A thick string passes from the hand round a pulley fixed at the corner of the roof, and continues onward to the wheel attached to one end of the pole. Supposing the wheel to be at the bottom—that is, let down, the string will then be turned many times round the large wheel, say 6 inches in diameter. The action is thus:—You pull the string passing over the pulley, which unwinds the string turned many times round the wheel, and as the string is gathered into the hand the pole turns round, winds up the blind, and proceeds with its burden until safely landed under its wooden covering at the top. There is some little accommodation required to learn how best to get the far end of the pole to reach its destination at the same time as the near end; but this, like all such matters, simply requires a slight observation to make the arrangement simple and effectual. The covering or locker for the blind, when drawn up, works on hinges and shuts down, resting on the roof, thus securing the blind from rain or damp.





The bearers should be four in number, about 3 inches from the roof, half an inch thick, to preserve the heat generated within, and to exclude more effectually the outer cold. The bearers to project beyond the glass at the lower ends. Let the blind down 1 foot beyond the glass, which serves the purpose of a blind for the front in keeping out the frost.

The blind is of a brown coarse stout canvas, such as is used for packing, 2 yards wide, at 9*d.* per yard. Before fixing up stretch it on the ground, and brush well over twice with boiled linseed oil.

As a proof of the cooling powers of radiation, and as a hint sometimes useful when the ice-house fails, we copy the following from our contemporary *Nature*.

ICE-MAKING IN THE TROPICS.

The most marked example of the influence of radiation of heat on temperature is its influence on the production of artificial ice by the natives of India.

The fields in which the ice is made are low, flat, and open; and the ice is produced in large quantities when the temperature of the air is 16° or 20° F. above the freezing point; and the plan followed is an interesting example of accurate observation applied to practical purposes by a people now ignorant of science. The same process has been employed from time immemorial in India with scientific accuracy; and while the theory was explained by Dr. Wells (Essay on Dew, 1814), the practical application was not so well understood; and this first led me to investigate the subject in India (Experimental Essay; Jour. Asiatic Society, Calcutta, vol. ii., p. 80.)

The following method is employed by the natives of Bengal for making ice at the town of Hooghly, near Calcutta, in fields freely exposed to the sky, and formed of a black loam soil upon a substratum of sand.

The natives commence their preparations by marking out a rectangular piece of ground 120 feet long by 20 broad, in an easterly and westerly direction, from which the soil is removed to a depth of 2 feet. This excavation is smoothed, and is allowed to remain exposed to the sun to dry, when rice straw in small sheaves is laid in an oblique direction in the hollow, with loose straw upon the top, to the depth of 1½ foot, leaving its surface half a foot below that of the ground. Numerous beds of this kind are formed, with narrow pathways between them, in which large earthen water-jars are sunk in the ground for the convenience of having water near, to fill the shallow unglazed earthen vessels in which it is to be frozen. These dishes are 9 inches in diameter at the top, diminishing to $4\frac{3}{10}$ inches at the bottom, $1\frac{3}{4}$ deep, and $\frac{3}{10}$ of an inch in thickness; and are so porous as to become moist throughout when water is put into them.

During the day the loose straw in the beds above the sheaves is occasionally turned up, so that the whole may be kept dry, and the water-jars between the beds are filled with soft pure water from the neighbouring pools. Towards evening the shallow earthen dishes are arranged in rows upon the straw, and by means of small earthen pots, tied to the extremities of long bamboo rods, each is filled about a third with water. The quantity, however, varies according to the expectation of ice—which is known by the clearness of the sky, and the steadiness with which the wind blows from the N.N.W. When favourable, about 8 ozs. of water is put into each dish, and when less is expected, from 2 to 4 ozs. is the usual quantity; but in all cases more water is put into the dishes nearest the western end of the beds, as the sun first falls on that part, and the ice is thus more easily removed, from its solution being quicker.

There are about 4590 plates in each of the beds last made, and if we allow 5 ozs. for each dish, which presents a surface of about 4 inches square, there will be an aggregate of 239 gallons, and a surface of 1530 square feet of water in each bed.

In the cold season, when the temperature of the air at the ice fields is under 50° F., and there are gentle airs from the northern and western direction, ice forms in the course of the night in each of the shallow dishes. Persons are stationed to observe when a small film appears upon the water in the dishes, when the contents of several are mixed together, and thrown over the other dishes. This operation increases the congealing process; as a state of calmness has been discovered by the natives to diminish the quantity of ice produced. When the sky is quite clear, with gentle steady airs from the N.N.W., which proceed from the hills of considerable elevation near Bheerboom, about one hundred miles from Hooghly, the freezing commences before or about midnight, and continues to advance until morning, when the thickest ice is formed. I have seen it seven-tenths of an inch in thickness, and in a few very favourable nights the whole of the water is frozen, when it is called by the natives solid ice. When it commences to congeal between two and three o'clock in the morning, thinner ice is expected, called paper ice; and when about four or five o'clock in the morning the thinnest is obtained, called flower ice.

Upwards of 250 persons of all ages are actively employed in securing the ice for some hours every morning that ice is procured, and this forms one of the most animated scenes witnessed in Bengal. In a favourable night upwards of 10 cwt. of ice will be obtained from one bed, and from twenty beds upwards of 10 tons.

When the wind attains a southerly or easterly direction no ice is formed, from its not being sufficiently dry; not even though the temperature of the air be lower than when it is made with the wind more from a northern or western point. The N.N.W is the most favourable direction of wind for making ice, and this diminishes in power as it approaches the due north or west. In the latter case more latitude is allowed than from the N.N.W. to the north. So great is the influence of the direction of wind on the ice, that when it changes in the course of a night from the N.N.W to a less favourable direction, the change not only prevents the formation of more ice, but dissolves what may have been formed. On such occasions a mist is seen hovering over the ice beds, from the moisture over them, and the quantity condensed by the cold wind. A mist in like manner forms over deep tanks during favourable nights for making ice.

Another important circumstance in the production of ice is the amount of wind. When it approaches a breeze no ice is formed. This is explained by such rapid currents of air removing the cold air before any accumulation of ice has taken place in the ice beds. It is for these reasons that the thickest ice is expected when during the day a breeze has blown from the N.W., which thoroughly dries the ground.

The ice dishes present a large moist external surface to the

dry northerly evening air, which cools the water in them, so that, when at 61° it will in a few minutes fall to 56°, or even lower. But the moisture which exudes through the dish is quickly frozen when the evaporation from the external surface no longer continues radiative; a more powerful agent then produces the ice in the dishes.

The quantity of dry straw in the ice beds forms a large mass of a bad conductor of heat, which penetrates but a short way into it during the day; and as soon as the sun descends below the horizon, this large and powerfully-radiating surface is brought into action, and affects the water in the thin porous vessels, themselves powerful radiators. The cold thus produced is further increased by the damp night air descending to the earth's surface, and by the removal of the heating cause, which deposits a portion of its moisture upon the now powerfully radiating, and therefore cold, surface of the straw, the water, and the large moist surface of the dishes. When better radiators of heat were substituted, as glazed, white, or metallic dishes, the cold was greater, and the ice was thicker, and the dishes were heavier in the morning than the common dishes. Any accumulation of heat on their surface from the deposit of moisture is prevented by the cold dry north-west airs which slowly pass over the dishes. The wind quickly dries the ground, and declines towards night to moderate airs. The influence of these causes is so powerful that I have seen the mercury in the thermometer placed upon the straw between the dishes descend to 27°, when 3 feet above the ice pits it was 48°.

So powerful is the cooling effect of radiation on clear nights in tropical climates, that in very favourable mornings, during the cold season, drops of dew may sometimes be found congealed in Bengal upon the thatched roofs of houses, and upon the exposed leaves of plants. In the evening the cooling process advances more rapidly than could be supposed by one who has not experienced it himself, and proves the justness of his feelings by the aid of the thermometer. In the open plain on which the ice is made, I have seen the temperature of the air, 4 feet above the ground, fall 70·5° to 57°, in the time the sun took to descend the two last degrees before his setting.

The tropical rains are succeeded by the cold season, when the night is cold, the sky quite clear, and the air becomes a bad conductor of electricity, from the dry northern winds which then prevail. This is proved by the rapidity with which evaporation proceeds, by the dispersion of clouds, and by the more evident proofs which the hygrometer exhibits. During the cold season vegetation proceeds, and electricity continues to be evolved by living bodies, and during their decomposition.

These remarks will enable us to explain the process by which the ice is prepared in Bengal.

1st, The large quantity of dry straw and moist dishes rapidly become cold, by their powerfully radiating surfaces, at the same time that the large body of dry straw strongly attracts positive electricity, and the descending currents of air deposit moisture in the dishes of water. Hence, during a cold and clear night, with airs from the N.N.W., the cooling process will advance more rapidly in proportion to the non-electric or attractive nature of the body, which with the radiating power of the surface, regulates the cold and the quantity of dew deposited upon the body.

2nd, The high and dry situation and free exposure of the ice fields to the sky, and the absence of all causes which could interrupt the influence of the large body of non-electrics, and the extensive surface of powerful radiating substances, sufficiently account for the degree of cold produced in the ice plates; and

3rd, The cool, dry north-west airs slowly pass over the ice beds, absorbing the accumulation of moisture and of heat, which is given off by the liquefying of a large quantity of water that would otherwise accumulate over the beds; and, thus retaining the air clear and dry, allows the full operation of the other causes, particularly radiation.—T. A. Wise.

[This method of obtaining ice seems to have been practised by the Israelites in the time of Josephus, for he mentions "the ice which the inhabitants of the country make during the summer."—(Dr. Bello Jud., iii., 10.)

It may be useful also to mention that if 1 lb. of sulphuric acid (oil of vitriol) is mixed with 1 lb. of water and allowed to become cold, and then 2½ lbs. of powdered crystals of sulphate of soda (Glauber's salt) are added, the operation being carried on in a cold place, the temperature of the mixture will sink to several degrees below the freezing point of water. The whole costs but a few pence.—Eds.]

VISIT OF THE ROYAL HORTICULTURAL SOCIETY TO BIRMINGHAM.

A public meeting was held in the committee room of the Town Hall, on the 18th inst., for the appointment of a local committee and making other arrangements for promoting the Exhibition of the Royal Horticultural Society in Birmingham in the month of June next. Mr. Alderman G. B. Lloyd (Ex-Mayor), occupied the chair. Mr. Marshall, a member of the Society's Council, and Mr. Richards, Assistant Secretary, attended as a deputation.

Mr. T. B. Wright before moving the first resolution, mentioned that letters of apology for non-attendance had been received from many gentlemen and gentlemen's gardeners. He said it was very satisfactory to find that so many noblemen's and gentlemen's gardeners were willing to render assistance in carrying out the undertaking which had brought them together. He had pleasure in moving, that the meeting having heard with much satisfaction that the Council of the Royal Horticultural Society had accepted the invitation to hold their next country meeting in Birmingham on the 25th, 26th, 27th, 28th, and 29th June next, pledged itself to co-operate in all the arrangements which might be necessary to promote the success of this its first visit to the district. They had on two former occasions met in that room to co-operate with local committees appointed to render the visit of the Royal Agricultural Society to towns not far distant from Birmingham as successful as possible. In 1859 the Society held its show at Warwick, and in 1871 at Wolverhampton; and in both instances the appeal to the town was met in a very liberal manner. On the present occasion Birmingham was the actual scene of operations, and instead of co-operating with a committee, they were met that day to appoint a local committee which would take the management of all the arrangements of the forthcoming visit. The inhabitants of Birmingham were glad to assist the Royal Agricultural Society, and he was of opinion they would show the same spirit of liberality towards the sister Association—the Royal Horticultural Society. On the former occasions to which he referred, the sub-committee merely took in hand the work for the town; but in the present instance their work would be not only in Birmingham, but in other towns besides, and sufficient evidence would be laid before them to show that they would have a very wide gathering ground, which, with an exceedingly influential committee, would, he thought, render it pretty certain that the visit of the Society next June would be successful. He hardly felt it necessary to say anything with regard to the operations of the Society. Some years ago it might, perhaps, have been thought to be aiming a little too high to exercise much influence upon the owners of ordinary gardens; but the Society had year by year become more and more useful; and it was a happy thought when the Council determined to hold their shows in different parts of the country, as that course would not fail to lead to the most satisfactory results with respect to the progress of horticulture. It would be remembered that the Society formerly held its provincial shows at the same time and place as the Royal Agricultural Society; but great difficulties were found to be inseparable from such an arrangement, principally because many persons found so much to occupy their attention in the grounds of the Royal Agricultural Society that they could not attend the show of the Royal Horticultural Society. Last year the first independent meeting of the Royal Horticultural Society was held at Nottingham, and was most successful. After its termination some correspondence with regard to the place for the holding of the next meeting took place between the Council and Mr. Quilter, and the result was that the Council determined the next show should be held at Birmingham. Mr. Quilter met the Council in a very liberal manner, and they were satisfied that no better spot than the Lower Grounds, at Aston, could be found; and that there was no other place in the vicinity of Birmingham where people were likely to attend in greater numbers. After this year the plans of the Society for the future would, he expected, be permanently decided upon, and arrangements made by which every part of the kingdom would be visited in its turn, and under these circumstances they might look forward, in six or eight years, to again welcoming the Society to Birmingham. With regard to the arrangements respecting exhibitors and subscriptions for admission, these would be made public in due time. They would, he was sure, be found to be on a very liberal scale. One duty which the local committee would have to discharge would be to raise a fund for providing special prizes to supplement those offered by the Society. For all other money subscribed full value would be received. In other places where exhibitions of this kind had been held, a large sum had to be raised in order to put the grounds in proper order. Nothing of the kind would be required in the present instance, for that would be undertaken by Mr. Quilter. From what he knew of the success which had

attended other exhibitions in Birmingham, he thought the Royal Horticultural Society could not have adopted a wiser resolution than that in which they determined to pay a visit to the town. The large exhibitions held here had taught many people the way to Birmingham, and he hoped the railway companies would be as liberal on this as they had been on other occasions.

Mr. Bragg seconded the motion. He said not only had they great pleasure in welcoming the Royal Horticultural Society; the Society had equal pleasure in accepting the offer of the people of Birmingham. From his knowledge of matters of this kind he ventured to say that the printed list of the local committee, if he might make the comparison, was superior in quality and numbers to any committee which the Society had previously had to assist them in their exhibitions. They felt they were about to achieve a success, and he hoped the meeting that day would come forward and supplement the ordinary handsome premiums offered by the Society.

The resolution was carried unanimously.

Mr. E. W. Badger having read a large number of letters from noblemen, gentlemen, horticulturists, and others, expressing their willingness to allow their names to appear in the list of the local committee,

Mr. Councillor E. Tonks moved that the noblemen and gentlemen whom he named, with power to add to their number, be appointed the local committee. He said the names had been most carefully selected, and therefore the meeting could not do better than adopt the list in its entirety. From what he could hear, the grounds upon which the exhibition would be held would offer a better opportunity of display than any site the Royal Horticultural Society had yet occupied.

The motion was carried.

On the motion of Mr. C. J. Perry, seconded by Mr. J. E. Mapplebeck, it was resolved that the Earl of Bradford be respectfully requested to accept the office of President [This he has done], and his Worship the Mayor of Birmingham that of Vice-President of the committee.

On the motion of Mr. Cartland, seconded by Mr. Vertegans, Mr. Councillor Lowe was unanimously appointed honorary treasurer.

Mr. Lowe proposed that Mr. E. W. Badger be appointed honorary secretary to the local committee. He said Mr. Badger had taken up the business in an earnest manner, and being a lover of horticulture and floriculture, he was the most valuable assistant they could have.

Carried *nem. con.*

Mr. Hallam said, that notwithstanding the very excellent appointment they had just made, there would be much work to be done, which would require the services of a paid secretary, and he therefore begged to propose the appointment of Mr. Alexander Forrest, which was carried.

Mr. Councillor Lowe moved that a subscription be entered into for the purpose of raising a special fund to supplement the prizes offered by the Society, and it being important that the list should be prepared without delay, the secretary be authorised to issue a supplementary circular. He said a great deal would depend upon this resolution, inasmuch as it had hitherto been the practice to raise a very considerable sum for the purpose of giving special prizes. The people of Nottingham managed to raise between £700 and £800. In Birmingham they had always been able to raise a good sum when it was required, and he hoped in the present case they would prove themselves at least equal to Nottingham, which they looked upon as a little village compared with Birmingham. He hoped that the amount subscribed would be so substantial as to render the invitation which would be given to exhibitors a strong one. There would be no difficulty, in his opinion, in obtaining £700 or £800, and he was equally certain that the committee would distribute it wisely. He believed he was correct in saying that not a halfpenny of any money which might be raised would go towards defraying expenses, and that the whole of the money would be given in special prizes. He trusted that a leading prize of £50 or £100 which had a decided Birmingham character, and which would be a novelty, might be given. Birmingham was noted for successfully carrying out great exhibitions of a national character, and he believed if the town and neighbourhood acceded to the proposal contained in the resolution they would have a thorough good prize list, and a successful meeting.

Mr. E. W. Badger seconded the motion. He said that with a large special prize list there would be no difficulty in making the visit of the Royal Horticultural Society a successful one. Indeed, had it not been the general impression of those who knew the feeling of residents in this locality that a large special fund would be raised, he did not think they would have entertained the idea of inviting the Society to come here at all. On all occasions when a good object had been properly put before the people of Birmingham and the district it had always been well supported. An object, like that connected with the visit to a town which is the central point of a large population resident in the counties of Warwick, Worcester, and Stafford, must necessarily be of importance to those who thought that horticulture had anything to do with the welfare of a people. The benefits attending a knowledge of horticulture and floriculture were incalculable, and one of the great objects of the Society was to foster a love for it, and extend knowledge concerning it. It was the bounden duty of all who felt as he did about the matter to give the Society the warmest welcome. He was satisfied they would do so in Birmingham. The interest which was first excited by the prospect of the visit had already been greatly augmented. The special work which lay immediately before them was to raise a sufficient sum to enable the committee to issue an attractive schedule of prizes to supplement that of the Society. They ought at least to raise in Birmingham as much as was contributed by the Nottingham people. There £750 was raised, and was subscribed almost entirely in the town, Lord Belper heading the list with a donation of £25. The total contributors numbered something like two hundred gentlemen. It had been strongly urged that the names of the donors should be given in an independent subscription list, and that the sub-committee who would draw up the special list of prizes should deal with the money as they thought fit. This would relieve donors from a great difficulty, and would secure homogeneousness in the prize list. At the same time, of course, where donors particularly wished to decide the destination of a subscription, their wishes would be carefully attended to. The resolution was carried.

Mr. Marshall, one of the deputation from London, said himself and Mr. Richards had attended that day in order to hear the views of those present. He presumed that every gentleman was more or less interested in horticulture, and therefore acquainted with the object for which the Society was instituted. That object, briefly stated, was to promote horticulture in all its branches. They had a great deal of trouble at the outset, but that had been got over in a very successful manner. The London shows having appeared to pall upon the public, it became necessary to make a stride, and so the Council determined to visit all the towns in England where any encouragement might be held out to them. At the outset it was considered necessary to join the sister Society, and visit the towns fixed upon by it. The year before last, however, some little discontent was expressed that there was so much to be seen at the Royal Agricultural show that visitors had no time to visit the Royal Horticultural show, and so the latter Society determined last year to go upon its own merits. The first attempt at Nottingham was a great success, and fully justified the resolution to which the Council had come. He could only hope that the show would be equally successful at Birmingham, and from what they had seen he had not the slightest doubt that such would be the case. The officers of the Royal Horticultural Society would not trouble the local committee to do much in connection with the arrangements, as they would look to that themselves; and the main duty of the committee would be the formation of a special prize fund. Of course the committee were far better acquainted with local interests and requirements than persons coming from a distance, and therefore the collection and appropriation of the subscriptions would be left entirely in their hands. The local prize fund should not be given, if possible, for any particular object, as that would interfere with the arrangements of the show. If a certain sum of money was placed in the hands of a responsible committee, they would be better able to divide it into prizes than if it was given by individuals for any particular hobby.

Mr. Richards, the other member of the deputation, said there was very little left for him to remark upon except with regard to the financial arrangements. The Council had had a preliminary meeting to decide upon the question of admission to the show, and they thought of fixing 10*s.* 6*d.* as the charge for the first day; 2*s.* 6*d.* for the second day; 1*s.* for the third and fourth days; and 6*d.* for the fifth. There would be a reduction of 3*s.* on tickets purchased beforehand for the first day, which would make the admission 7*s.* 6*d.* The subscription for the entire Show it was thought should be a guinea. Subscribers of one guinea, it was suggested, should have three single tickets for the first day, and four for the second day, but he thought they would have to discuss that hereafter, as the privilege contemplated seemed rather too large. For a subscription of 10*s.* 6*d.* a single ticket of admission, available on all days, but not transferable, would be given. Tickets for the third and fourth days should be sold to manufacturers for their workpeople, in packets of not less than fifty, at a reduction of 30 per cent. The financial result of the meeting at Nottingham was very satisfactory, the Society having cleared between £700 and £800. He could only say that with a large place like Birmingham they hoped to clear double that sum—perhaps more.

In answer to the Chairman, Mr. Quilter said the Society and himself undertook the whole expenses of the show. After the expenses had been defrayed they would divide the surplus equally between them. The establishment of such a place as the Lower Grounds had naturally been a source of great anxiety to him. He little supposed he should ever make it what it was, or that the public of Birmingham and the district would have

supported him in the manner they had done. Having attained the position which he had done, and his place having been honoured so far as to be selected for the show, he was very anxious it should be known that he did not embark in this undertaking for his own benefit. He intended to give to the charities of the town half of his share of the proceeds. He did so for the reason that the town should not only give a hearty and united support to the Society, as no doubt they would, and send it back with a good round sum of money to be devoted to the advancement of horticulture; but at the same time prove that they had not forgotten those noble charities of which they were justly proud. He wished this to be distinctly understood, because some persons thought the speculation was simply a money-making one with him.

In answer to Mr. Cartland, Mr. Richards said the proposal as to admissions which he had read was merely a sketch, and at present in embryo only.

Mr. Wright, alluding to the regulations with regard to the tickets, said he thought the Council of the Cattle Show had adopted the wisest plan, after studying the regulations of every society in England. They had had experience of the advantage of promoting the sale of tickets beforehand. The subscribers of £1 received six single tickets, all of them being available for the first day, when the charge for admission was 5s.; but it was found that not more than half went on that day, the other half going in on the 1s. days. He thought the same principle should be adopted at the forthcoming show, and that a very liberal return for subscriptions should be given. For a guinea subscription three tickets should be issued for the first day; four for the second day; and for the Thursday and Friday thirty tickets for £1, and fifteen for 10s. Looking at the extent of the grounds and their great popularity, and the advantage of being within easy reach, he thought they had better go on a liberal scale.

Mr. Wright next moved a resolution to the effect that every encouragement be given for the exhibition of horticultural implements and appliances, garden ornaments, and articles generally which are applicable for use in the several branches of rural economy. He said that at previous shows this department had not always been successful, as it had been found that when the meetings of the two great Societies were held together many of the implements used in horticulture were in the showyard of the Royal Agricultural Society. Now, however, that the shows were held independently of each other, there would no doubt be a good collection, the more so as he believed the promoters of the department intended to act very liberally towards the exhibitors, remembering the old saying that "if there were no exhibitors there would be no exhibition." The regulations had satisfied Mr. Lowe, who, he might say, was an authority on such exhibitions; and, therefore, he hoped that other manufacturers would combine and make the show not only one of large extent but also one of great interest.

Mr. J. Cartland seconded the resolution, which was carried.

It was proposed by Mr. Quilter, and seconded by Mr. E. W. Badger, that a memorial be presented to the Directors of the London and North-Western Railway, asking them to erect a temporary station at Witton Bridge for the accommodation of the show.

This motion was also carried.

At the close of the meeting subscriptions to the amount of about £130 were announced.—(*Midland Counties Herald.*)

CONIFERS WHICH HAVE SEEDED AT BICTON,

AND THE MODE OF RAISING THEM FROM SEED.

The plan we adopt here with rare Conifers is to have clean pots or pans well drained, and filled with sandy loam or other suitable soil, to cover the seeds carefully and not too deeply, and to finish with fine soil, which we firm equally. We then plunge the pots or pans near the glass in finely-sifted cinder ashes under cold frames or pits. The surface of the soil is kept in proper condition as respects moisture, neither too wet nor too dry; we also keep the pit or frame close until the seedlings appear, after which we gradually harden them off, and in due time remove the lights altogether. By the 1st of July, if the seed has been sown in March, the seedlings may be transplanted into boxes, after which we shade them for a few days, and then inure them to light, attending to careful and regular watering during the summer and autumn months.

The pots or boxes should be protected from frost during winter; this can be done in a cold frame or in a sheltered corner in the open air, where they should be well covered with dry fern, so that no frost may penetrate to the roots. Leaf mould free of sticks is also a good material. Supposing the winter to have been passed safely, and that March has come round, transfer the stock to nursery lines, where the plants will soon give a good account of themselves if placed in a good position in sandy loam. They should be transplanted annually for two or three years, after which they should be planted out in selected spots where the soil has been properly prepared for their reception.

Conifers of which large quantities of seeds ripen here every season—such as Picea nobilis, P. cephalonica, &c.—are sown in prepared beds in the open air, and grow freely in this way; they remain in seed beds for twelve months, after which they are planted in nursery lines as before stated.

CONIFERS THAT HAVE RIPENED SEED.

Araucaria imbricata
Abies excelsa
pendula
elegans
orientalis
alba
nana
nigra
rubra
cærulea
Khutrow or Morinda
Douglasii taxifolia
Douglasii
Menziesii
canadensis
dumosa
Smithiana or Morinda
sibirica
laxa
sp. from New Holland
nigra pumila
excelsa foliis variegatis
glauca alba
tenuifolia
gracilis
carpatica
monstrosa
acutissima
gigantea
polita
Alcoquiana
microsperma
Cedrus Libani
africana
atlantica
Cryptomeria japonica
nana
Lobbii
variegata
Chamæcyparis thurifera
Cupressus sempervirens
stricta
religiosa
dicæia
thujoides
variegata
lusitanica
torulosa
Goveniana
pendula
thurifera
torulosa viridis
Tournefortii
expansa
macrocarpa
Lambertiana
glandulosa
Macnabiana
Lawsoniana
Picea pectinata
tortuosa
Pichta
Pinsapo
cephalonica
balsamea
Fraseri
grandis
amabilis
nobilis
Webbiana
Pindrow
Naptha
Nordmanniana
balsamea prostrata
hybrida
bracteata
firma
Regime-Amaliæ
Apollinis
panachaica
magnifica
Pinus sylvestris
horizontalis
uncinata
genevensis
montana
rubra
Pumilio
Fischerii
Mugho
Laricio
caramanica
subviridis
Pinus calabrica
taurica
Pallasiana
Hon. F. Strangways
pyrenaica
Pinaster
corsica
escarensis
Lemoniana
maritima
Pinea
halepensis
Brutia
Banksiana
inops
pungens
resinosa
Mitis
tæda
rigida
Fraserii
insignis
californica
Teocote
patula
Gerardiana
Pseudo-Strobus
oocarpa
Cembra
sibirica
helvetica
Strobus
Lambertiana
monticola
excelsa
Ayacahuite
hispanica
sp. from Armenia
variabilis
colchica
var. of Laricio
Brunoniana
hagnensis
Laricio altissima
Strobus laxa
Lord Clinton's Pinaster
maritima dietritis
Wilkinsonii
Lindleyana
densiflora
Larix europea pendula
americana
microcarpa
dahurica
Kæmpferi
Thujopsis Standishii
Thuja occidentalis
plicata
incurvata
aurea
orientalis
stricta
tatarica
pendula
Warreana
pyramidalis
japonica
falcata
pygmæa
Fitzroya patagonica
Retinospora pisifera
obtusa
Taxodium sempervirens
Juniperus vulgaris
suecica
hibernica
Oxycedrus
drupacea
virginiana
bermudiana
Sabina
tamariscifolia
variegata
prostrata
phœnicea
Lycia
thurifera
squamata
recurva
chinensis
uvifera
taurica
repanda

Juniperus Cracovia	Juniperus religiosa
pendula	canariensis
flaccida	flagelliformis
communis pendula	mexicana
glauca	recurva nova
oblonga	Chamberlainii
Belfordiana	hibernica compressa
depressa	rigida

Cedrus Deodara has coned for several years past, but there are no fertile cones as yet. This year cones have been produced, but I have been unable to discover any pollen on the trees.

Cunninghamia sinensis has coned for several years, but has not proved fertile as yet.—R. Begbie, *Bicton Gardens.*

USEFUL FOREST TREES OF INDIA.

Very voluminous returns have recently been issued among the parliamentary papers, naming the trees and showing in detail the progress of the new system of forest administration.

The three principal sorts of trees in the old forests are Teak, Sál, and Deodar.

The papers prepared for parliament give the reports of the twelve forest administrations on the operations of the financial year 1869-70. The report from British Burmah shows that, of the total area of 60,000,000 acres, there are 1,534,000 acres of Teak-producing forests, and 2,946,000 acres of forest void of Teak, besides 26,000,000 acres of low-lying forest land and land occupied by 12,845 towns and villages. The yield of timber from British forests in the year was 53,395 logs, 39,843 tons, and the surplus of the year's operations was £50,934. The Pegu division is the largest and most important. The average age of a first-class tree of 6-feet girth in this division is found to be 124 years.—(*Times.*)

ARECA RUBRA.

This is a free-growing, tolerably hardy Palm, and for these reasons I wish to especially draw the attention of amateurs to it. It is admirably adapted for the decoration of the dinner-table, the drawing-room, the hall, and of the open grounds during the summer months, as, indeed, are all Palms, from their readiness to grow and their power to withstand the evil consequences of the dust arising from our sea-coal fires. The genus Areca is widely distributed, being found in both the East and West Indies, Australia, and, as in the case of the species now under consideration, in the Mauritius and surrounding islands. One East Indian species (A. Catechu), yields the famous "Betel Nut," which is chewed with such gusto by the natives; and A. oleracea of the West Indies is the famous Cabbage Palm—one of the vegetable wonders of my schoolboy days.

Areca rubra is a quick-growing plant, rising upon a somewhat slender stem; the leaves are long, pinnate, sheathing at the base, with long, narrow, and slightly recurved pinnæ; the colour in a young state is a beautiful crimson red, changing to a bright green as the plant grows older, though the midrib of the pinnæ and the sheathing petiole, however, still retain a deep red colour, which, combined with its beautiful plume-like aspect, should render it a favourite of all admirers of ornamental-leaved plants. The species is propagated from seeds sown in strong heat and grown on in a stove temperature for the first year or two, by which time they will have become handsome young plants. If required for the decoration of the greenhouse or the drawing-room, it will be advisable to inure them gradually to a cooler temperature; but should they be wanted for the decoration of the stove or for exhibition purposes, then do not on any account give them a check.

Areca rubra.

The soil in which the Areca rubra thrives best, is that composed of equal parts of peat and loam with a little sand, to which a little more loam may advantageously be added when the plants have attained some size. The pots should be well drained, and the plant in summer should have a liberal supply of water both from the watering-pot and syringe.—Experto Credde.

AMONG THE CONIFERS.—No. 2.

The formation of the pinetums at Dropmore, Bicton, and some other places has done much good by drawing attention to the culture of Conifers, and has laid a solid foundation for others to build upon. That their teaching is thoroughly

appreciated is shown by the numerous fine examples of the best known varieties now common to most gardens. The graceful forms are constantly to be met with, and one cannot but admire them wherever they are seen flourishing. With this feeling of admiration, however, comes the thought, Have Conifers yet found their right place in gardenesque scenery, and have we fully realised all that is capable of being effected by the skilful arrangement of the beauties possessed by this large natural order? I think that such is not the case, and purpose devoting the present paper to the consideration of this important part of my subject.

With many of the choicest varieties wonderfully rich and distinct effects may be secured in extensive shrubberies, as well as in park and landscape scenery generally. Mark the effect produced by a group of solemn Pines fringing the brow of some high hill, and then try to imagine that which a grove of Deodars would present on its steep slopes. What so suitable for such a purpose as the Deodar? The sweep of its pendant branches makes it as suitable a tree for covering the steep hill side or fringing a mountain torrent, as it is for adorning our lawns and pleasure grounds.

In advocating the more extensive introduction of Conifers I do not mean to ignore the merits of such noble deciduous trees as the Oak, the Beech, the Elm, or the graceful Birch, so beautiful in winter. These are far too valuable ever to be set aside. But I think the two classes may be advantageously blended together.

The form and extent of dressed grounds very much affects the way in which Conifers should be arranged in them. Great attention should be given before deciding upon the number of plants and the most suitable varieties. In many instances more plants are used than there is any necessity for, and a confused crowded aspect is imparted to what, with a little judicious management, might have been a graceful and enjoyable scene. It may be useful to quote a simple instance or two by way of illustration. On a small plat of grass in front of a pretty villa I once saw a single plant of Araucaria imbricata in good health and of most handsome proportions; a few groups of Roses and other flowering plants were tastefully dispersed around upon the turf, but as there was no other plant of the same species to detract from its appearance, the effect was singularly pleasing. In contrast to the chaste simplicity of this scene take another. On some turf very similar in size and position, a number of Conifers of various kinds were planted in straight rows, causing it to look more like a portion of a nursery garden than a villa lawn. It is unnecessary to dwell upon this lesson further than to observe that it is applicable in the case of the most extensive gardens. It is best, therefore, in grounds of no great extent, to keep to a few choice kinds planted singly, or with other shrubs, upon the lawn in suitable positions. In selecting kinds for such a purpose, care should be taken to choose those of established merit and distinct appearance. If six were wanted I would choose Cupressus macrocarpa, Picea Nordmanniana, Picea Pinsapo. Thujopsis borealis, Cedrus Deodara, and Araucaria imbricata, If a dozen, I would add Juniperus chinensis, Thuja Lobbii, Wellingtonia gigantea, Pinus insignis, Cupressus Lawsoniana, and Taxodium distichum. These are all distinct and excellent species, but to do full justice to them a considerable expanse of turf would be required.

Araucaria Imbricata at Piltdown.

In large gardens I am sure that grouping may be carried to a greater extent than it has hitherto been done, judging from what I saw during a visit to the nursery of Mr. Mitchell at Piltdown. The many kinds o Coniferæ cultivated at this nursery are remarkably healthy and vigorous, and a clear idea of their relative value can easily be obtained from the number there associated. The Araucaria, however, was the one which particularly attracted my attention. For some way along each side of a broad walk are rows of this tree, all of them symmetrical, but some notably so. I remarked a fine specimen about 30 feet high, which has its branches so regularly arranged as to render it conspicuous even among the others. Another large plant is a strange yet beautiful object, having long twisted arms closely set with spinous leaves, but presenting a naked appearance from the absence of any lateral growth. Many of the lower branches spring out fully 10 feet from the bole, twisting in a singular and not ungraceful manner, so as to stamp the tree as being almost a distinct variety. At the entrance of the avenue stands by far the finest specimen I have ever seen (of this we give a figure). It is a vigorous tree, 45 feet high, and beautifully clothed with branches from the base upwards. What an attractive feature an avenue or a group of such fine trees would form.

Mixed groups and borders are common enough, and generally do not fail to please the eye; but if Conifers were introduced in masses, I think some additional beauty might be gained. Thus, besides a grove of Araucarias, there might be others of the lofty Abies Douglasii, the rich green Cupressus macrocarpa, Wellingtonia gigantea, and such Pinuses as ponderosa, the glaucous macrocarpa, and the bright green insignis. Many other species of Conifers might be quoted as being equally suitable for such a purpose, and with these individual taste can vary the list so long as it confines itself

to these sorts which possess distinct form and colour.—Edward Luckhurst.

WINTER CULTURE OF THE ROSE TREE.

Now-a-days Perpetual Roses flower in the open ground as well towards the end of October as they do in the spring. In the immediate neighbourhood of Lyons the temperature has not yet sunk below 32° F., and in spite of the nearness of lofty snow-girt hills, which chill the moisture of the atmosphere, the cold is more piercing than severe. The leaves of Roses do not commonly fall until after a frost of from 5° to 7° F., and even then they are not longer than a fortnight in making their re-appearance if the weather turn milder. The plants themselves do not like either heat or cold in excess, but rather a temperate and circulating atmosphere; and do not show their proper fullness, freshness, or shade of colouring in any other season but the spring and autumn. It is then that the Teas, and more especially the Noisettes, come forth in all their true beauty.

We are at this very time (November) potting-off Roses for winter-flowering in the greenhouse, but in so doing we have to be careful which we select for that purpose, as forcing does not agree equally well with them all. Those which do not thrive under such treatment are Jules Margottin, Mme. Moreau, Rose du Roi, La Reine, Lion des Combats, Toujours fleuri, Achille Gonot, and the numerous class of Géants. Others show themselves less insusceptible of forcing, and such are the Teas, the Noisettes, and the Fles Bourbons. Among these there are Mme. Falcot, de Safrano, de Sombreuil, and Gloire de Dijon, from all of which some pretty flower for a bouquet may be obtained. Bengals succeed best as forced plants, and particularly Hermosa, Cramoisi supérieure, and Prince Charles. There are certain varieties which flower well in vases, but their branches stretch out and straggle about too much to form a fine head, though they do excellently as cut flowers. Of these Ludovic Letault, whose flower bud is like that of Cent-feuilles, is one.

In November and December slips or grafts should be taken from a fine well-rooted plant, placed in 5 or 6-inch pots containing neither too sandy nor too clayey a soil, watered in order to settle the earth, and two days afterwards sunk somewhat deeply in the open garden. There let them remain for a year, and in the following November or December lift, clean, and carry them into a hothouse, where a bed of tan, so regulated as to begin heating shortly after their insertion in it, is prepared. Heat the house gradually, and water and besprinkle the plants moderately, taking care o give them snatches of air whenever the sun reappears. Insects, which will not be backward in making their presence known, should be treated with the fumes of tobacco. Should there be any signs of flagging, water the base of the Rose once or twice with water slightly tainted with "purin" or guano; but be very cautious not to use it too highly nitrogenised, or else it will cause the roots to rot instead of strengthening them.

Six weeks in the hothouse is about the time required for bringing the Roses into flower, and after their blossoms have been all gathered for decorative purposes, they may be removed to a cold or temperate house until the spring, and then planted out of doors to take their chance. This is not always a favourable one, especially during the summer. When there are several houses devoted to this kind of culture, three or four successions of forced Roses can be produced, between each of which a difference of temperature should be kept up; thus, the second and third houses should have temperatures varying from 60° to 68° F., when the first batch is beginning to go off.

Pits can be used for forcing Roses instead of greenhouses, they should be heated by means of a good bed of horse droppings fresh from the stable, over which a thick coating of light earth or sand is spread, wherein the pots are plunged, the whole being covered at night, and upon foggy and very cold days. It is in this way that spring Roses are prepared for sale in the markets before those out of doors have come into flower. In this case Roses recently potted in November or December can be used, and not those of the preceding year. The forcing of them in a greenhouse for the spring is the same.

We think that our way of forcing Roses is an immense stride in the art of cultivation, when the Romans knew of it more than two thousand years ago. History tells us that the Egyptians, who were still at the front of civilisation, sent the Emperor Domitian as an invaluable gift, a bouquet of Roses in the winter time; but this token of deference was received by the court with a contemptuous laugh, so plentiful was the flower at that period in Rome. Martial says, "The sweet scents of spring time are wafted about the streets, and lavish flowers, in garlands woven, strike with dazzling lustre upon the eye. O Egyptians! do you send us corn, and we will give you Roses in return." During the public games the ediles would send crowns of Roses to senators and other persons of repute, and a similar adornment was, on the occasion of her marriage, laid upon the forehead of the bride. Guests at banquets quaffed the old Falernian in goblets crowned with Roses, and the same seductive flower diffused its perfumes from the tables and the couches on which the guests were lying. Even the streets were sometimes, according to Charles Malo, strewn with Roses. To obtain them during the winter the Romans used to heat their conservatories with boiling water.

But long before this the Greeks had carried the cultivation of the Rose to a high pitch. They wore it on their heads, decorated their furniture, and perfumed their wine with it. During the war of Cerra, so great became the sensuality of the Lacedemonian troops, that they did not care to drink any wine but that which was perfumed with Roses. The kings of Bithynia used to recline upon pillows embellished with the Rose; and the Jewish priests, in their great ritual, had their heads encircled with it. The taste for this flower ran to such an immoderate height during the times of Paganism, that a reaction took place with the introduction of Christianity, and we find Tertullian and Clement of Alexandria declaiming against Roses, because the crown that Christ had worn was one of thorns.

But this was only a fleeting shadow of bitterness and sorrow. The chaste and beautiful Rose soon reasserted her claims to the devotion of every kindly heart and noble spirit. The frequency of its usage in the rites and feasts caused such pleasure, that the serious Christians did not hesitate to admit it in their celebrations. The papacy created an order of the Golden Rose, and then the simple and odorous Eglantine became the prize of the floral games.—(*La Belgique Horticole.*)

ENTOMOLOGICAL SOCIETY'S MEETING.

The first meeting of this Society for the present year was held at Burlington House on New Year's evening, when, notwithstanding the attractions of the festive anniversary, there was a good attendance of the members. Among the donations to the Society's library received since the last meeting were the fifth volume of the "Catalogue of Memoirs," published in the Transactions of all the learned societies, issued by the Royal Society, one of the most elaborate and useful works ever published; together with the usual periodical works treating upon entomology.

The Secretary said he had received communications from Professor Newton, and Messrs. H. Doubleday and J. Gould, relative to the destruction of dragon flies by birds, the last named gentleman stating that the hobby and kestrel feed on those insects, and that smaller birds will readily attack the smaller blue dragon flies commonly seen about rushes growing in running streams. A letter was also read from Mr. Riley, the official entomologist of the State of Illinois, stating that the whole of the valuable collections of the late Mr. Walsh had been destroyed in the fire at Chicago, and Professor Westwood stated that of Mr. Stimpson, being by far the largest collection of Crustacea ever formed, had also there perished.

Mr. Miller called attention to a recent statement of M. Emile Joly, published in the Memoirs of the Academy of Cherbourg, to the effect that the genus of supposed Crustacea founded by Latreille under the name of Prosopistoma is probably only the immature condition of Conis, one of the genera of Ephemeridæ.

A memoir was read by Mr. A. Butler containing descriptions of some new exotic moths of the group Pericopedes; and Mr. F. Smith read a letter from Mr. J. T. Moggridge, on the habits of some species of ants belonging to the genus Aphenogaster, observed at Mentone, at the end of last October and beginning of November. These ants harvest the seeds of various plants in chambers, sometimes excavated in solid rock beneath their nests. He had seen them busily engaged in conveying the seeds into their chamber, and found that in most cases they gnawed off the radicle to prevent germination, but he had also observed sprouted seeds being brought out again, as apparently unsuited for storing purposes. Many of these seeds had their contents extracted through a hole on one side; and though he had not seen the ants actually feeding on them, he was inclined to believe that the stores were made for the purpose of supplying food during the winter season, whilst the ants, although not dormant, were confined to their nests. It was stated that Colonel Sykes had communicated a memoir on this subject to the Society many years ago, proving that certain Indian ants store up grain for food during winter, and have the instinct to bring what remains unconsumed to the surface to dry it after the closing storms of

the monsoon, thus confirming the assertion of Solomon (Prov. vi. 7), which had been doubted by some northern naturalists ignorant of the manners of the species in warm climates.

SOME OLD AND NEW FUCHSIAS.

I HAVE not the intention of sending you a critical account of all Fuchsias, and particularising every good one—no such ambitious project is mine. I merely think I can pen a few lines on some that I, who have been a Fuchsia admirer and cultivator for several years, have found worthy of attention.

First, then, let me start with the double white corollas. There is a very beautiful one sent out by Mr. Cannell, and I think raised by Mr. Bland, in 1870. This is one of the best of the section, as the flower is good in style; a fine large flower, tube and sepals very bright in colour, and the corolla very double and of a pure white. There is an older variety, Vainqueur de Puebla, which is also exceedingly good. These I should place in the front rank. Empéreur des Fuchsias is a fine large flower, but the tube is too pink in colour, and the corolla not of a good-enough white to suit my taste.

Of the varieties with single white corollas an old one, Conspicua, is, I think, as good as most. It is a good, large, well-reflexed flower, the corolla a good white, and the tube and sepals a very good red. It has a peculiarity in often bearing flowers with five or six sepals, and I recollect once noticing one monstrosity with eight sepals. Another very good one is Picturata, not a very large flower, but having a beautifully pure white corolla. I have, and have had, many others of this section, but none that I think equal to these two. Next in order I will take white tubes. One of the best of these is Annie, an old kind, but yet one of the best. Beauty of Clapham is a very handsome flower, very large, but the tube is not pure white. Madame Menoreau, a continental introduction of three or four years ago, is also a very large beautifully formed flower, but it has the fault of the tube not being pure white. Lustre is another very beautiful light variety, with which I think everyone ought to be pleased. The tube is very white, and the corolla very bright. Arabella, Blanchette, Elegance, Minnie Banks, and Rose of Denmark are also good varieties in the white-tubed division. I must not forget to mention a unique variety which is not much known, called Erecta. Instead of carrying its flowers in a drooping position it holds them erect.

I will next name a few good double dark sorts. Agamemnon, Marksman, Norfolk Giant, Alberta, and King of the Doubles, are all old favourites. Triumphans is a fine new variety of 1870 which Mr. Williams introduced, and there are, doubtless, several others in this class which are good.

Of the single dark-corolla'd kinds blue and mauve have progressed very much in quality lately. Roderick Dhu, Father Ignatius, Emblematic, Constellation, Beauty of Sholden, Mr. Disraeli, and Beauty of Kent are fine varieties, some new and some old; and of the darker plum, or blackish plum corollas, Light Heart, War Eagle, Enoch Arden, Aurora, and Marvellous are all good. But I would especially name one as being extra good—viz., First of the Day; it has a splendid corolla.

These are a few of the best, but I daresay there are plenty of others. Regalia, Cloth of Gold, Golden Queen, Golden Mantle are also beautiful variegated-foliaged varieties.—GEORGE W. BOOTHBY.

STRAWBERRIES.

I AM highly gratified to find a man of Mr. Gilbert's experience writing so highly of the Black Bess Strawberry. I quite agree with all he says about it, and repeat that it is a noble Strawberry, which must be more generally cultivated when known. No doubt you will bring to mind that I sent you, some weeks since, a note on its merits, but only a notice appeared in the correspondence column to the effect that you knew nothing of it, and asked for a few plants. The following week you noted that you were led to understand it was synonymous with Empress Eugénie, and I find by referring to the description of the latter variety in Dr. Hogg's "Fruit Manual," that some of the characteristics are the same as of Black Bess, thus:—"Fruit very large, irregular angular, furrowed and uneven. Skin of a deep red colour, becoming almost black when highly ripened. Seeds small, not deeply embedded. Flesh red throughout, hollow at the core, tender, very juicy, and briskly flavoured. Rather a coarse-looking and very large Strawberry, not remarkable for any excellency of flavour."

What does Mr. Gilbert say to this? Does it correspond with his Black Bess? It should be added that there are as many conical-shaped fruit as those of other shapes, especially after the first two or three pickings. I never found them, or at least very few, hollow at the core, and I call them excellent in flavour. It bears a striking resemblance to some of the new French Strawberries illustrated in Dr. Hogg's "Gardener's Year Book" for 1871. Not having it at hand I cannot say which.

I had Dr. Hogg Strawberry for the first time last year, so I cannot speak positively about it. I liked the few fruit I had of it, but the plant is certainly not stronger than British Queen, which grows by the side of it. I believe it to be of a weak constitution. One plant of Black Bess is as large as eight of either of them at the same age.—J. T., *Maesgwynne, South Wales.*

SELECT ROSES.

To the thirty-six Roses already named by me these may be added—La Ville de St. Denis, Madame C. Joigneaux, Madame C. Verdier, Madame Knorr, and Madame Charles Wood; Triomphe de Paris, Mons. de Montigny, and Gloire de Vitry, three fine old Roses; Alice Dureau, Dupuy Jamain, Madame Jacquier; Eliza Boëlle, like Mdlle. Bonnaire, but a better grower; Baron Chaurand, very handsome, black shaded; Lord Macaulay; Lord Clyde; Mdlle. Emile Boyau, like Madeline; Annie Wood; La Sœur des Anges; Prince Leopold, a fine pole Rose; Black Prince; Glory of Waltham, a fine pole Rose; Le Lion des Combats, lake; John Keynes; Frederick Biborel; Lord Herbert, very fine; Monsieur Noman.

Twenty-four of the Best Summer Roses.—Paul Ricaut, Paul Verdier, Madame Soëtmans, Charles Lawson, Coupe d'Hébé, La Volupté, Kean, Queen of Denmark, Boula de Nanteuil, La Ville de Bruxelles, Grandissima, Triomphe de Jaussens, Napoleon, Général Jacqueminot (H.C.), Tricolor de Flandre, Madeline; Œillet Parfait, beautiful, but dwarf and delicate; Juno, William Tell, Transon Goubault, Gloire des Mousseuses, Vandael, Crested Moss, White Bath.

Twelve Good Summer Roses.—Princesse Clementine, Common Moss, Lancii, Felicité Parmentier, La Seduisante, Charles Duval, Paul Perras, Persian Yellow, Blanchefleur, Frederick II., Chénédolé, and Brennus. The last three, Madame Soëtmans, La Ville de Bruxelles, Madame Plantier, Fulgens, Triomphe de Bayeux, and Lancii make good pole Roses. Summer Roses are good for long walks and glades, but should not be put with the autumnals. Tricolor de Flandre, Œillet Parfait, and Madeline are the only good variegated Roses we have, and they are beautiful.

Summer Roses are very hardy, suitable for the north, give a grand but short-lived season of bloom, and are very sweetly scented. You may back them for bouquets without injury.—W. F. RADCLYFFE.

MAKING A MUSHROOM BED.

THE old-fashioned ridge system of cultivating the Mushroom is an excellent one, and I have often obtained good and plentiful crops from beds formed on this principle. They should be 3½ feet in width and of the same height if intended for winter or early spring, and from 20 inches to 2 feet in width and height if meant for summer use. The great drawback is the long time that must elapse before the bed becomes ready to receive the spawn, and can be earthed-up and protected. I therefore choose for this purpose rather dry filmy material from old linings and hotbeds, which costs no time in preparing, and when firmly beaten into the proper form heats mildly and regularly, so that the spawn may be with safety inserted very shortly after the formation of the bed. The only drawback to beds of this kind formed out of doors, is the abundance of covering they require to keep in the heat, and the necessity of removing it at the risk of admitting the cold air whenever the Mushrooms are to be gathered. For these reasons I would recommend that the beds be formed under a shed where less covering is necessary, and where they can be examined at leisure.

For shallow beds in a Mushroom house, I prefer two parts of horse droppings, one of short litter, and one of dry fibry loam, but the materials mentioned before will also do for this purpose. I used to turn over the manure and let it get dry before mixing the loam with it, but now I think the object is attained just as well by throwing them together outside in a somewhat conical-shaped heap, and covering it with litter to keep off the wet. This, when it has so heated as to be white and dry in the middle, has the exterior removed, and is mixed with some fibry loam to make it firm. By this means a good

crop is obtained without a tithe of the trouble required in the other case, as less of the richness of the dung is expended than there is by the repeated turnings of the manure. A thatched shed shaded by trees is very desirable, but I have seen good returns, even in summer, from small ridged beds under the shade of trees. Mushrooms do best between the temperatures of 50° and 60°, but without these limits good crops may reasonably be looked for.—R. F.

"LES PROMENADES DE PARIS."

In resuming our notice of M. Alphand's great work we now come to that portion of it treating of the Bois de Vincennes, well known to those who have visited Paris as being on the east side of the city.

Avenue of Limes at Minimes.

The Bois de Vincennes forms part of what was originally the great forest of Lauchonia, extending from Melun to Paris along the right bank of the Seine. In the seventh century this was severed into three parts, which are now respectively represented by the Bois de Bondy, the Bois de Livry, and the Bois de Vincennes. This last is said to have been the first forest ever enclosed in walls, and the occasion of its being so was to preserve the stags, fallow deer, and roe sent by Henry II. from England to France.

The history of this, as of most forests near the capital, is that the Sovereign and the Court preserved it as chase or hunting-ground. A château was built there in the twelfth century, and from that time to the present it has been utilised to the varied requirements of the age and of the Court. It continued in the hands of the French Sovereign till 1792, when it became part of the national property; but in 1810 it returned to the Sovereign, and after undergoing many changes and vicissitudes it was in 1852 included in the civil list of the Emperor Napoléon III. In 1860 it became the property of the city of Paris, and then were begun those great works which, under the direction of M. Alphand, have resulted in an illustration of landscape gardening seldom to be met with, and the

production of one of the most important and beautiful public promenades of the French metropolis. Unlike the Bois de Boulogne, the Bois de Vincennes has the advantage of a stronger and moister soil, and was covered with large timber, which enabled M. Alphand to take advantage of the opportunity thus offered of cutting avenues and vistas so as to produce immediate effects. The two illustrations now given furnish representations of the manner in which this has been carried out, one being the Avenue of Limes, and the other the Chestnut Avenue at Minimes.

Chestnut Avenue at Minimes.

SMALL FARMS—HOW THEY CAN BE MADE TO ANSWER.—No. 6.

By Rev. William Lea, *Vicar of St. Peter's, Droitwich, and Hon. Canon of Worcester.*

STOCK FOR A FRUIT FARM.

As I am writing for the express purpose of advocating small fruit farms sufficient to employ one family with a little occasional help, this point must be borne in mind when the question of stock is considered. My ideal small farm, where it is to be had, is a mixture of grass and tillage—sufficient grass to keep three cows, and from three to five acres of tillage planted with fruit. Five acres should be the greatest extent; if it exceeds this it implies more hired labour than such a cultivator can afford.

I mention three cows, for I am told, knowing nothing of the subject myself, that cows are in inverse ratio to boys—we have a proverb in these parts, that one boy is a boy, two boys half a boy, three boys no boy at all. But with cows it is the reverse, one cow is no cow, two cows are half a cow—a doubtful advantage—but three cows are a cow, a very profitable investment. We will take, then, an ideal case, and suppose that there is sufficient grass land to keep three cows. How much this will be, will vary according to the soil; from three

to four acres of rich land to nine or ten of inferior land will be required. The wife will manage the dairy, and after making a good profit by the sale of butter and milk, will have plenty of this last produce left for her own children, who will grow on this diet to stalwart lads, able to do good service on the farm long before they are old enough to leave school. I have an idea that this milk question is an important one. It did not require the sad experience of the siege of Paris to prove how essential milk is for young children. Formerly it was readily obtained from the farm houses in country parishes, but now, I am told, there are but few at which it can be purchased; and where there is a difficulty on this score, I believe one of the most useful kinds of charity which any person could adopt, would be to keep cows for the purpose of selling milk to his poor neighbours. It would do far more good than any amount of money distributed in gifts or doles, which, as far as I can see, only tend to pauperise and destroy that spirit of self-respect and self-reliance which is so essential to the upward progress of a people. In addition to cows a few head of sheep should be kept on such a farm as I have described. They will eat the herbage which the cows have passed over. But cows and sheep can only be kept where there are some acres of grass, and as this will not always be the case, we will inquire what stock can be advantageously kept where the fruit farm is only tillage land from three to five acres in extent, and what buildings will be required to house it.

But before we house the stock we must consider how the owner of it should be housed. This is a very important matter; the character of the house has no inconsiderable influence upon that of its inhabitants, and where a whole family —parents, sons, and daughters—are huddled together in one sleeping-room, as is too frequently the case, all feelings of decency and self-respect are destroyed, and with them the fulcrum on which the lever for the upheaving of the family must rest. It is true that the cottager himself is often satisfied with his present accommodation, and in many cases if he were supplied with three bedrooms, would only see in this provision a reason for "taking in a lodger;" but we may hope that in a few years the Education Act will have produced a change of feeling in this as in many other respects, and that the labourer will not be contented with the wretched hovel in which he is now often obliged to live, but will demand, as a condition of his labour, a cottage in which the decencies of life can be observed, and a good-sized garden to counteract the attractions of the beershop, and to give employment for the spare time of the family.

In building a cottage certain well-known principles must be borne in mind; good drainage and proper ventilation are necessities, so is the provision of a certain number of cubic feet of air in proportion to the number of inhabitants. This last point is, I think, sometimes exaggerated, when it is maintained that the country cottage should contain the same number of cubic feet as the town dwelling or the prison cell, forgetting that the countryman and his family pass much of their time in the open air, and use the cottage principally as a sleeping-place. The point which I should consider as the most essential is, that there should be three separate bedrooms, or, at any rate, the means of providing them when required by the increase of the family—one for the parents, a second for the girls, a third for the boys. They may be small and rough, if you please, but they should be separate if any feelings of modesty are to be retained. My idea of a cottage for a fruit farm of from three to five acres would be this:—On the ground floor one living-room, about 18 by 13 feet (including the staircase), with a wash-house and back kitchen in one, 18 by 9, containing furnace, oven, &c; and on the upper floor three separate bedrooms. I think two good rooms below are better than three smaller ones, as I find that where there is a parlour, as it is called, it is seldom, if ever, used. If grass land is attached, a somewhat better description of house will be required; a small parlour may be added on, and a dairy of a similar size. I do not say that such cottages can be built to pay a high per-centage in the way of rent, but the extra money spent upon them will do far more good than if it had been given in doles.

So much for the cottage itself; the building to which the next point of honour should be given is the pigstye. The pig, as in Ireland, will be a material help in paying the rent; more than this, he will consume all the refuse vegetables, and tread the weeds and Potato haulm into manure, which is essential for the success of the farm. On such a take as I have described, one or even two breeding sows might be kept, and the young pigs which are not wanted for stores for the next winter sold off as soon as they are able to leave the mother. Let us see what buildings will be required for this purpose. There should be two or three styes under one roof, either of wood or brick, each of them 7 by 6 feet, and 4 feet high to the wall-plate; a good-sized pound, 7 by 12 or 14 feet in length should be attached to each. The fence of the pound should not be made of brick but of slabs of wood placed sufficiently near together to prevent the little pigs creeping between them; the building should face the south, and the bed should be raised 6 inches above the pound, and slope gradually towards it. Close at hand should be a cistern for wash, sufficiently large to hold at least a truckload of grains of 150 bushels, as it will sometimes happen that it will be necessary to keep the young pigs on hand longer than is recommended, or, it may be desired to feed them off as porkers.

As to the sort of pig which is most profitable, I incline after several experiments to a half-bred Berks. High-bred pigs, though they feed on less than others, are apt to be delicate in constitution, and are not such good or prolific mothers as the half-bred sorts. What a poor man wants is a sow which will bring on the average ten pigs at a litter, and this twice in the year, and bring them up herself in good condition without the assistance of the cow; and as far as I have been able to see, a half-bred Berks will answer this description better than any other. In some parts there is a prejudice in favour of white pigs. Wherever this is the case a half-bred Yorkshire may be preferred; but the point I wish to insist on is, that a high-bred pig is not a poor man's pig, unless he can buy one at six or eight months old as a store—in that case it will answer his purpose better than any other, especially if he likes his bacon fat, with a very slight admixture of lean. It is astonishing what a large bury of manure may be produced by a small number of pigs, if only care be taken to put by everything for the pound. Potato-haulm when dry, weeds of every kind, dead leaves, or grass, fern, or heather where it can be had—all should be carefully collected, and, after being well trodden by the pigs, moved to the heap, and in due course passed on to the ground. There is no doubt about the profit of this part of pig-keeping, though some authorities have questioned whether a pig is ever fed by a cottager to a profit; but to say nothing of other considerations, I am of opinion that this may be done. If all money paid out of pocket for the purchase of the pig, for grains, flour, and food of every kind is calculated, I think a pig may be fed for 8s. a-score; and this, when the pig is killed and salted, will give a cottager his bacon at less than 6d. per pound—no slight advantage, be it remembered, when he cannot buy butchers' meat under 8d., and when it is also remembered that one pound of bacon will go as far as two of fresh meat. Then there are all the incidentals to be taken into account—the pig's company, the refuse he consumes which would otherwise be wasted, the manure he makes, last and not least the air of comfort and contentment which he gives to the cottage when he is suspended from the ceiling in the shape of flitches. When all these points are duly weighed, I think I shall not be far off right in saying that every cottager ought to feed a pig, or two if he can, for pigs are sociable animals and thrive best in company; and if two are not required for the use of the family, one of them can be readily sold.

Next to the pig comes poultry, another very useful adjunct to the kind of farm we are describing. At some seasons they will require to be kept away from the fruit trees, but it is astonishing how soon they learn what they may do, and how far they are permitted to go. With regard to their dwelling-place, if the pigstye is ceiled with boards about 4 feet from the ground, the vacant space above will make a very good roosting-place, and the warmth from the lower storey will make the hens begin to lay earlier than they otherwise would.

Here again, as with pigs, I believe the most profitable sorts will be found to be half-bred. The cross between the Dorking and the Cochin, or the Dorking and the Brahma will be ready for the table at three months old, and as they will begin to lay in January, and the chickens are remarkably hardy, there will be two or three hatches ready to send to market at the end of May or beginning of June, when they ought to be worth 6s. a-couple. If these half-breds are allowed to grow to their full size they will weigh 7 or 8 lbs. each. But the best cross for the table I have ever meet with is between these half-bred hens and a Game cock; so much so, that I should recommend it for that purpose in preference to any other cross, or even to pure-bred birds, for the pure Cochin is an ugly bird for the table, and is also too fond of sitting. The Brahma is much the same in

these respects, the Dorking is too tender in constitution, the Game requires a large run, and does not do well in confinement; but if instead of chickens for the table, eggs are required for sale, the Hamburgh, Spanish, or Houdan will be found the most profitable breeds.

But is there any profit in keeping poultry? From my own experience I can say that there is; not a large one, but still a fair profit after paying all expenses of food, and charging the chickens throughout the year at 4*s*. a-couple, and the eggs at fourteen for 1*s*.

Ducks are a more questionable kind of stock for profit; they ought to be sold off when young at 9*d*. or 1*s*. each. They will then pay well to the grower; but if he keeps them on and feeds them for the table the profit will soon disappear, for a batch of young ducklings will eat as much as a pig. Nor should I recommend either Turkeys or Geese, unless there are special facilities for keeping them.

There is one kind of stock for a fruit farm which I have not yet mentioned, because I have no fancy for it myself and have never tried it. I mean a hive of bees. They cost nothing to feed, for like Pigeons they live upon your neighbours, and bring their produce home; but I expect that bee-keeping is a *specialité* which is only to be attempted where there is a mutual attraction, and this does not always exist; for bees, I am told, have their likes and dislikes to particular persons just as their betters have. There is generally a good demand for honey, and if this should not be the case it is an article which may be profitably consumed at home, and will be very popular wherever there are children. I have heard that in a good year the profit on a hive of bees is reckoned to be as high as 15*s*. or £1.

I am conscious that one serious objection may be raised against what has been hitherto said in these papers: "You have gone in entirely for what is profitable, and neglected the beautiful, unmindful of the French dictum 'that the beautiful is often quite as useful as the profitable, and sometimes more so,'" and as I fully acknowledge the truth of these last words, I will make what amends I can, mindful of the old adage:—

"Omne tulit punctum qui miscuit utile dulci."

I will go so far as to say that the fruit farm will not be perfect unless it is enlivened by flowers, among which their queen, the Rose, should hold a prominent place. The gable wall of the cottage will probably be covered by an Apricot tree, which in good seasons will furnish no inconsiderable item towards the rent, but the front and other parts may well be given up to climbing Roses, such as Maréchal Niel with his golden blossoms, which he will give forth in abundance against a wall, however coy he may be of displaying them unless provided with this protection, and the Gloire de Dijon, the most prolific of all Roses. But in speaking of the Rose, I have a shrewd suspicion that by growing it the fruit-farmer may unite the *utile dulci* very much to his own advantage, and may turn it into a profitable crop. I once gave a basket of Roses to a Manchester salesman as a present to his wife, and the next time he paid a visit to my farm he confided to my man the fact, that his wife, being of a practical turn of mind, sold my Roses to a lady for the sum of 7*s*. 6*d*. I have also discovered that another who sometimes visits the black country, and comes before he starts to beg a Rose for his button-hole, generally selecting a full-blown specimen, has an eye to business as well as to personal adornment, for he never brings the Rose back with him, as he can sell it readily to some of his customers for 6*d*. These facts lead me to imagine that the fruit-farmer may do worse than put in a few dozen Briars to be budded with Roses; and if he has a road or path through his plantation, he may make it much more "eyeable," as they say in these parts, by erecting some rough rustic arches across it with oak poles, and covering them with the Gloire de Dijon Rose. In addition to the Gloire, which will seldom be without a blossom from the middle of June till the frosts set in, he should grow as standards Sénateur Vaisse for a dark Rose, and John Hopper for a pink Rose. I mention these varieties as being good croppers and having compact blossoms, which will bear the transit well; and if the fruit-farmer will follow my directions, I think he will find that a pot of Roses will not be the least profitable or the least appreciated produce which he can send to the markets of the great smoky towns of the north.

I hope that I have carried my readers so far with me as to convince them that a working man may make a very good living from a small fruit farm, planted and managed as I have described. If a man has a small freehold of his own in a suitable situation, I do not think he can turn it to better account (to say nothing of the pleasure and interest derived from this kind of cultivation), than by planting it with fruit; or if a man has laid by sufficient capital, say £100 or more, I do not think that he can make a better investment of it than by taking a lease of four or five acres of suitable land for fourteen or twenty-one years, and planting it with fruit at his own expense. But my principal object in writing my experiences on this subject is the hope that they may induce large landowners to take the matter into their consideration, and establish a few such farms on their properties as inducements to thrift and industry, and as steps in the ladder to enable the deserving labourer to rise in his own profession in life. In this case the landlord should plant, at any rate, a portion of the ground with the best varieties of fruit, and those most suitable to the district, leaving the tenant to fill up the rest in time with grafts or cuttings taken on the spot. The rent for the first two or three years should not be above the agricultural value of the land, but it may be raised as the fruit trees come into bearing, till on a good soil it reaches £5 per acre or more. In such a case, where the landlord is at the expense of planting, I do not think that a lease should be given, as if the trees are neglected the occupier should have immediate notice to quit. The land selected should be of a fair quality, suitable for the growth of fruit, and within reach of a good market, or of a railway station, to which the produce may be sent. If these conditions are observed, I think a few such farms held out as rewards to deserving labourers would help to raise the tone of the whole district, and be a benefit to the community at large. I have a strong feeling that in the present day we want every means that can be devised to promote the growth of that self-reliant independent spirit which is the cause of a country's greatness, and to arrest the spread of pauperism. This last evil must be cut-at at both ends if the quality of a population is to be maintained—at the lower end by checking the indiscriminate system of out-door relief, which is simply a premium on improvidence; and at the higher end by offering every aid to thrift and industry, and every inducement to hardiness and independence, for wherever these qualities are dying out among the bulk of a people, that country, whatever its wealth may be, is not far from a fall. I believe that the establishment of such farms as I have described would have some influence for good, and if these papers should have the effect of inducing anyone who has it in his power to make the experiment, their purpose will have been sufficiently answered.

GOOD PEAS.

I use Ringleader, Little Gem, Advancer, and end with Veitch's Perfection. The three sorts first named do not require sticks; the last requires a stick here and there. I do not like Peas that require sticks. The birds make more havoc with staked Peas than with those unstaked. Moreover, you can net unsticked Peas better than sticked ones.

A dish of King of the Marrows was sent to me by our clergyman; they were large and of admirable flavour. I believe the stems grow 5 or 6 feet in height.

If Peas are not sticked or netted, the birds can only make havoc on the exposed side.—W. F. Radclyffe.

REMONTANT HYBRID ROSES.

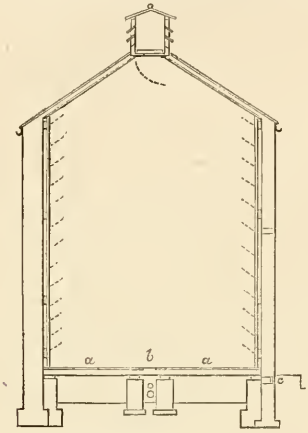
De Perquet's French dictionary is by no means a first-rate authority to consult for terms not in frequent use in ordinary conversation. Being a compilation made in and for the preceding generation, it is at the present time an imperfect one also. Remontant is a French word with every probability of becoming an English one too. It is purely and simply the present participle, answering to the English participle in *ing* of "remonter," which in Spiers' dictionary, now the standard work for literary and other reference, is given with some twenty different shades of meaning, besides idiomatic phrases in which it is used; its general meaning is to re-ascend, to rise, or ascend again. "Hybride" will also be found twice in the same complete work, first as adjective, hybrid; second, noun mas. or fem., also hybrid. Peduncle is a botanical term in frequent use, explained by Dr. Lindley ("School Botany," p. 11) thus, "The stalk of the flower is its peduncle, and if the latter is divided into many smaller stalks its divisions are called pedicels," sometimes written pedicles. One of the greatest of living scholars, Archbishop Trench, deprecates strongly the

insertion of purely technical terms in the dictionaries of common use—a principle adhered to in the main by the best compilers. It is not profitable, therefore, to be searching for words where they are not to be found, especially in what the Archbishop terms "that absurdest of all books, a pronouncing dictionary," whether of Walker or of anyone else.—A. H. Kent.

BELTON GRAPE ROOM.

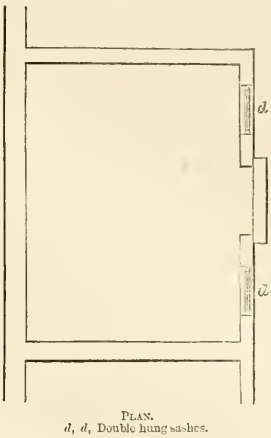
[The following is the report on the system of keeping Grapes pursued by Mr. Moore at Belton, referred to at page 51].

The Grapes were cut on November 9th, 1871, and the stems put into bottles of rain water with a little charcoal in each bottle. Soda-water bottles were used, and filled a little more than half full of water; when placed in the rack the water stood



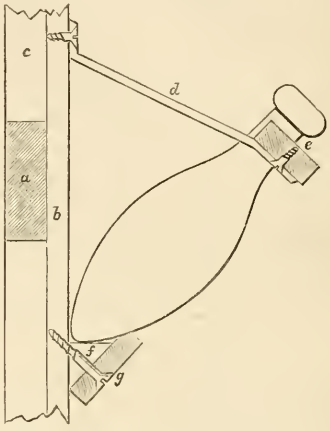
Section
a, *a*, Boarded floor.
b, Air-grating over hot-water pipes.
c, *c*, Air-grating below board floor

at an angle, which it was thought would prevent its evaporation. Two bunches were weighed when placed in the room, and were ticketed 2 lbs. and 1½ lb. respectively, in order to test if



Plan.
d, *d*, Double hung sashes.

the berries had the power of taking up the water in the absence of leaves. On December 21st these bunches were again weighed; the 2-lb. bunch was found to have taken up 1 oz., and the smaller one three-quarters of an ounce. The room was kept cool with closed shutters in consequence of the changeable but for the most part severe weather, the heating power being only used to keep out frost. In this way a very steady temperature of about 38° was maintained in the room, and only on two occasions did it fall below that point—namely, on the 19th of November, when the thermometer stood at 37°, and on the 8th of December, when it fell to 36°. The temperature never rose above 43° at any time. The Grapes appeared to be keeping perfectly up to December 19th, when a few mouldy berries were observed and cut out; on the 20th they were again closely examined, when it was found that many of the berries were cracked; these were at once taken out. The 21st being a drier day the windows and door were opened, and the heat turned



Bottle Rack.
a, Ledge fixed to wall.
b, Tongued and beaded board lining to wall.
c, Clear space.
d, Iron bracket 1 inch by ¼ inch.
e, Top bar.
f, Angle block 3 inches long
g, Bottom bar.
Bottles 3 feet 6 inches apart in the horizontal line, the rows 1. inches apart vertically.

on; at this time a large number of the berries had burst; the stems were then drawn out of the water, with the view of checking the bursting of the berries. On the 22nd and 23rd, the weather being very wet, the room was kept closed except the top ventilator; still more berries kept cracking. The 24th being a dry day the room was again fully opened; the berries were rapidly bursting. On the 26th and 27th 115 lbs. of berries had to be cut out, and the stems were inserted into Mangold Wurtzel, and all the best bunches removed into the vinery. The remainder were inserted in Mangolds and kept in the room. On the 28th 4½ lbs. of berries had to be cut out. On the 29th and 30th the cracking was to a great extent checked, as on those two days sixty-three berries only had to be taken out, and these chiefly in the room.

The above remarks apply to the Black Alicante Grape. The Muscat of Alexandria did not crack, but the berries discoloured, commencing at the footstalks.

The Grapes when cut in November were all perfectly ripe and highly coloured.

It is desired to know what is the true cause of the failure. The accompanying are a plan and section of the Grape room. —W. Moore.

NOTES AND GLEANINGS.

Mr. Martin Sutton, the head of the well-known firm of Sutton & Sons, Reading, to whom was lately granted the special warrant of seedsmen to H.R.H. the Prince of Wales, invited the numerous hands employed in the warehouses and offices to his residence, Cintra Lodge, where the convalescence of the Prince was celebrated by a display of fireworks and illuminations. A military band was in attendance, and refreshments were provided, of which about 300 partook.

—— Gardeners' Royal Benevolent Institution.—The Rev. S. Reynolds Hole is to preside at the next anniversary dinner.

—— Mr. John Andrew Henderson died on the 13th inst. at Hamilton Terrace, St. John's Wood, aged 77. Such is the brief announcement we have to make of the departure of one whose name in former years so intimately associated with the Pine Apple Place Nursery, from the management of which, however, he had for many years retired.

WORK FOR THE WEEK.

KITCHEN GARDEN.

The time is at hand for beginning operations here in earnest. One of the first steps is to plan out every inch of ground for the whole year, and to put laths, descriptive of the manuring, the kind of crop, and what it is to be succeeded by, at the heads of the quarters. It is also necessary, in order to follow up a systematic rotation of crops, to keep a cropping-book corresponding with the labels. Most people will be laying in their stock of seed for the year. A little *Cauliflower* and a pinch of *Brown Cos Lettuce* should be sown in boxes placed in a forcing house. Slopes should be forthwith formed, about 3 feet 6 inches wide, running east and west, and attached, if possible, to the framing ground, as such crops as *Horn Carrots*, *Early Lettuces*, and *Radishes* will require occasional covering with litter. Slopes of this kind, after having borne their spring and early summer crops, will be free for autumn ones, as *Endive* and autumn *Carrots*, or for raising a stock of winter Lettuces. The sooner *Asparagus* beds are manured and earthed the better. Plant *Jerusalem Artichokes*, *Horseradish*, and *Sea-kale* as soon as possible. Plant a few early *Potatoes* 8 inches deep, and draw off 2 or 3 inches of soil in the first week of April as a cleaning process. Sow *Parsley*, early dwarf *Cabbage*, Round *Spinach*, and Early Dutch *Turnips* on a warm slope. Select some small *Onions* of last year's growth, plant them a few inches apart on the surface of the soil, and cover them with earth; many of these can be drawn early in a green state, whilst others can run on for early kitchen use. The true Two-bladed Onion is the only one fit for this purpose, as it does not run to seed, but the very smallest should be selected for this purpose. Now a small patch of this kind, for producing young Onions early, should be sown in a warm corner very thickly, and protected as directed for Radishes. A well-prepared situation should be chosen for *Shallots*, over which some charred refuse should be thrown, and the bulbs placed on the surface.

FRUIT GARDEN.

The thinning and pruning of orchard trees should be proceeded with, and liberal dressings of manure given to exhausted soils. Prune and remove the suckers from Filberts, which rarely, except in Kent, get the management they require. Recently-planted orchard trees should be securely fixed, by using a little hay or moss at the tie to preserve the bark. Fruit-tree borders, particularly for the finer kinds against walls, should be made with fresh, turfy loam; so let that be prepared. Where the loam is heavy add road scrapings for the Peach and Apricot, but for Cherries and Plums use loam itself. Pears require a small quantity of cow dung, but not if the loam is rich. Dust over on damp mornings, with soot and lime, Gooseberries and plants which are attacked by birds, for preserving the buds of which two or three dressings will be sufficient. Raspberries may have the old wood removed and the new shoots thinned, the shortening of them being deferred until another time.

FLOWER GARDEN.

Wherever there is a large extent of mixed shrubbery some care is necessary to prevent the stronger-growing bushes from overgrowing the weaker ones, and it will be found better every few years to lift and replant the former than to prune them severely, as this, by inducing the growth of luxuriant wood, prevents the habit of blooming profusely. Never allow a margin of bare earth to intervene between the grass and the plants, but cover it with such low-growing plants as Periwinkles. The pruning of the more common kinds of Roses may now be done. Should, however, a part of the Provence, Moss, and others of the summer-flowering kinds be required to bloom late, reserve a portion till April for that purpose. The produce of Auricula seed sown last autumn will now need attention. If they have been planted out in sheltered beds it will be advisable to stir the soil with a blunt stick, remove the dead leaves, and to clean the beds thoroughly, after which a top-dressing of a compost of decayed horse manure and leaf soil should be applied to the depth of half an inch. It will be necessary to begin the destruction of snails by setting baits, such as bran, &c., to decoy them. Flowering plants in pots must be very carefully attended to, according to the directions lately given. Phosphoric poison will be found an effectual means of destroying mice. Polyanthus seed may now be sown in pots. Many of the Tulips are now so forward that, unless protected in some way, serious consequences may result to the embryo blooms. I would advise that some sandy peat be put in small cones over the rising plants just as they emerge from the ground, which will greatly protect them; this would, however, be detrimental if it were deferred until they opened. Pinks and Pansies will still require protection as previously recommended, but Carnations and Picotees in frames must have all the exposure possible. Ranunculus beds may be thrown up in ridges of about 4 inches, so that the lower part of the bed is allowed to remain undisturbed. By this means advantage can be taken of a fine day, about the 14th of February, to rake them level, as when suffered to lie in the ridged state the surface soil becomes sooner dry.

GREENHOUSE AND CONSERVATORY.

Some of the conservatory climbers, as those on pot trellises, will soon want dressing. The time for doing this must, however, depend in some degree on the time at which they are required to blossom. Cinerarias which are cramped in their pots should have a shift, as should also Chinese Primroses for spring work. Frequently examine Heaths and other plants which suffer from damp at this season. It is often necessary to keep a little air on at night, when a slight fire should be maintained, which, with sulphur efficiently applied, will greatly help to keep plants free from disease. Shift all greenhouse plants frequently to prevent their growing one-sided, and see that no decayed leaves are allowed to remain on them. Keep up a succession of blooming plants from the forcing pit in the conservatory, and do not let the temperature fall below 40°. The larger kinds of Fern and some dwarf Palms have often a good effect when skilfully introduced among mere forced flowers.

STOVE.

Potting may be proceeded with from this time onward, but it is not necessary that this should be the case with Orchids, except to facilitate the dispatch of spring business. Extirpate insects when you have any leisure. The snails may be baited for by laying a slice of fresh-cut Turnip on the spot, examining it about nine o'clock in the evening and again the following morning. The Blatta or cockroach may be destroyed by spermaceti and arsenic, say 2 ozs. of the former to 1 oz. or less of the arsenic. This may be done by dipping sticks in the composition and pushing them into the pots. Woodlice may be caught in a variety of ways; they will resort to a corner that is kept dry, and may there be scalded. Thumb-pots with dry paper, hay, or rags will entrap them.

FORCING PIT.

Introduce into the forcing pit bulbs, Roses, Pinks, Lilacs, and plants of a similar description for succession. Take care that the roots of plants in plunged pots are not burned; no portion of the plunging material in the vicinity of the roots should exceed 75°. Maintain an average atmospheric temperature of 60° at night and 70° by day, admitting air on all favourable occasions.—W. Keane.

DOINGS OF THE LAST WEEK.

Gathering vegetables, trenching, and digging were our only occupations of importance during the last week, as no very delicate operations could be proceeded with on account of the damp condition of the soil.

The Incomparable White Celery is still looking well, but it has suffered more from the long-continued wet weather than the Red, which stands out clean and fresh, whilst the other shows signs of damping and decay at the points. Notwithstanding the advantages of the bed system in economising space, I think in such unfavourable weather the plants are safer in single rows.

Our beds of Sea-kale, each of which has two rows, we covered to the depth of 6 inches with ashes, placing some hot leaves in the trenches between the beds, and also upon the top of the ashes. When treated in this way the heads generally come stronger than when the plants are taken up and placed in a Mushroom house.

Prepare for planting Asparagus, Sea-kale, Rhubarb, and Artichokes, and turn over the ground intended for Carrots, Onions, and Potatoes. Made mild hotbeds for Carrots, Radishes, and Potatoes, and placed many of the earliest of the last-named in shallow wooden boxes. In this position they make a very free growth, but if early-ripe tubers are desired they are produced better in 60-sized pots.

FRUIT GARDEN.

Kept the fruit-room well aired by means of fire heat and ventilation during the early part of the day. On foggy days keep the ventilators shut and give a little air at the top; on sunny days do not give much heat for fear of making the air too dry, and thus causing the late Grapes to shrivel. Strawberries should be brought on very gradually, and watered very carefully. Inexperienced persons should not use saucers for early crops unless they take care to see that these are empty shortly after watering.

Fruit trees intended to bear in pots may be raised, replunged, and mulched or surfaced with rich compost. It is too late to repot should fruit be wanted at all early, under ordinary treatment; that is best done at the end of summer, in order that the pots may become full of roots before the tops break into growth. Good results may notwithstanding be obtained by potting now and placing the pots in a mild bottom heat, whilst the head is kept as cool as possible until the fresh roots are near to the sides of the pot. To have ripe Strawberries in March, the plants must be well established by the middle of September. Plants taken up even now would make little progress if put in a forcing house, however gradual the increase of temperature. Those lifted in March and April and placed where there is heat will do very fairly, particularly if bottom heat sufficient to encourage the roots a little more than the top, can be given them at first.

Preparations for the planting of fruit trees may still be proceeded with.

All hardy fruit is scarce. In a good fruit season Apples and Pears would not bring much until after midwinter, but this season half a peck of Apples has often brought more money than a couple of bushels did in more plentiful years.

ORNAMENTAL DEPARTMENT.

Box-edgings may now be cut, but the best time for doing this is in spring, when the frost is nearly gone, or early in autumn. If cut in winter or too early in spring they are apt to have, for a time, a stubby half-dead appearance, instead of the rich fresh green.

Transplanting.—Trees from 4 to 7 inches in diameter of bole may be moved advantageously, even without preparation, by tracing the roots and by means of a timber gig. This consists of two wheels, an axle between them, and a pole, to which horse-power is applied in proportion to the weight. We would rather have done the work early in November, as when the soil is too wet it is difficult to pack the fine saved fibres properly, and on this packing much of the success depends.

Hyacinths and *Tulips* peeping up out of doors would be safer if little cones of ashes, rough cinders, sand, or, best of all, fine charcoal, were placed over them as a protection from frost and excess of moisture. A little litter would be an equally good protective against frost, but unless carefully removed in mild weather, the damp which accumulates about the top of the plants will injure them. It is not even advisable to use a shading or protecting cloth to the finer kinds too early, as the flower-stems are thus apt to become drawn and weak. When the bulbs are planted regularly over a bed, each forward bulb, as it pushes through, may be protected by an inverted 4-inch pot, the hole of which is stopped. Many years ago we used to protect Tulips, Hyacinths, and the earlier Narcissus of the good sorts in this way, adding mats or litter in severe weather, and taking off the pots in bright warm weather.

Heartsease, Pinks, and *Carnations,* especially if young plants out of doors, will require to be examined and fixed firmly in their places after such changeable weather. In fixing them with the fingers, a little dry sandy soil with some small charcoal will be of advantage, and will prevent future frosts throwing the roots bare.

Auriculas can scarcely have too much air in this mild weather, but the sash over them must be tilted back and front to prevent deluges of rain from inundating the pit or frame.

Shrubby Calceolarias.—The first cuttings inserted in the cold pit at the end of October are now matted with roots, but those inserted in November are merely beginning to strike. We would have liked better if the earlier had been like the later, as we must do everything to keep the more forward back until the weather will permit us to plant them out more thinly. Though they stand damp well, we do not want them to be wetted by the heavy rains, and therefore take the sashes off only when there is no prospect of rain, merely tilting the sashes on wet drizzling days. Without being in fire heat or in pots, it is rarely that our bedding Calceolarias are ever troubled with the nibble of an insect.

Chrysanthemums.—We have now only a few of these flowers left. The tops should be cut down, and the plants turned into the soil to set the pots at liberty. By-and-by cuttings, suckers, or bits of the old plants may be grown on for next season's blooming. For beds out of doors, or for walls, large masses of this plant are more suitable. For flowering in pots, cuttings and rooted suckers have their special advocates. We never saw much difference in the results, if equal attention was given to potting, and especially watering. We used, after the plants were fairly started, to turn them out into rich soil in May and June, and pot them with balls at the end of October. These and the winter-flowering Salvias do well under this treatment, and much watering which would be necessary for pots in summer is saved. We used to pack four or five plants in a vase, as closely as possible, leaving an open space in the centre, on which the bottom of an 8 or 12-inch pot was placed. The shoots of the side plants hid the central pot, and a fine pyramid of flowers was obtained. To save frequent watering, these plants were in summer plunged in a bed of half-decayed leaves, and the pots were moved frequently to prevent the roots going much beyond the pot.

Camellias.—If the soil is well drained, plants swelling and opening their buds should be rather freely supplied with water at least as warm as the temperature of the house. Weak liquid manure will also be acceptable, and especially if instead of being of a hot it is of a rather cool nature, as that made from cow dung which has been dried somewhat, and is at least a twelvemonth old before it is added to the water. If good guano is used, 1 oz. to the gallon is enough. It is well to remind those who wish to have Camellia blooms early in winter, that it is not advisable to apply any extra heat for that purpose then; but whatever extra heat or forcing is given should be applied so as to excite early growth in spring, and the early setting of the bloom-buds in summer. When these conditions are secured, the buds will swell in autumn and open at the beginning of winter in a moderate temperature, such as 45° at night. A high temperature applied to make the buds swell and open will often cause them to fall. The true time to force is when there has been a rest of a few weeks after blooming.

Deutzia gracilis, with its spray of white flowers, is very useful at this season for relieving flowers more brilliant in colour. Very little heat soon brings it into bloom. I have flowered it well along with Lilacs, Rhododendrons, &c., by lifting the plants with balls, potting them, and plunging in a slight hotbed six weeks before any increase of the atmospheric temperature was given.

Bulbs.—Hyacinths, Tulips, &c., may be flowered early if the bulbs are potted early in autumn. No forcing can well take place until the pots are full of roots. When I have had my supply of bulbs late in the season and wanted some in flower by Christmas or the New Year, I have plunged the pots in a mild hotbed out of doors, and put little over the bulbs, the object being to have the pots well filled with roots before the tops moved. The heat beneath is of no use except under such circumstances and for early bloom. In taking the bulbs to a hotbed after plenty of roots have been made, it is desirable to shade the yellowish growth above the soil either by an inverted pot, which helps also to draw-up the flower-stem, or by a thick mat over the glass, especially in sunshine, until the top growth acquires its natural green colour. When the flower-stems are rising strongly they will often begin to open their blooms sooner if placed on a shelf nearer the glass, but otherwise in the same temperature. Before the plants are taken to a room, window, or cool house, the pots should be moved out of the hotbed, and then the plants be gradually hardened off, so that the change of climate may not be felt.

Once I had to keep up a succession of Hyacinths in flower with a limited number of glasses, the same glasses having to be supplied with bulbs in bloom as long as they could be had. I grew the whole in pots, turning the plant into the glass when a few of the lower flowers on the spike had expanded. The ball was turned out of the pot, and the whole of the soil washed away in a pail of water at from 65° to 70° without injuring a root. The roots were then put carefully into the glass, sup-

plied with soft water, and, if the glass was coloured, some charcoal and pieces of manure were added.—R. F.

TRADE CATALOGUES RECEIVED.

Stuart & Mein, Kelso, N.B.—*General Catalogue of Vegetable and Flower Seeds.*

Hooper & Co., Covent Garden Market, London, W.C.—*Gardening Guide and General Catalogue.*

W. Bull, King's Road, Chelsea, London, S.W.—*Retail List of Select Flower, Vegetable, and Agricultural Seeds, and New Plants.—List of Gladiolus and New Plants.*

TO CORRESPONDENTS.

N.B.—Many questions must remain unanswered until next week.

Character (*W. Taylor*).—It is a satisfactory testimonial; and on what ground you could have thought it needful to consult a lawyer we cannot discern.

Setting Boilers—Raising Flow-pipes—Evaporating Tanks (*M.*).—In fixing a saddle boiler two plans may be adopted according to the size of the boiler. If the boiler is small raise it at the sides the thickness of a firebrick or tile above the furnace-bars; leave an open space of 6 inches at the farther end; build with brick a flue 6 inches wide round the sides of the boiler, and bring it as near the furnace doors as you can. This flue may be made of bricks laid across from the curve of the boiler, or by an iron plate so placed. The opening at each side near the furnace door allows the heat and smoke to go round the outside of the boiler, then to pass along the top and up the chimney, the farther end being blocked up. In a large boiler we should prefer having two flues at the sides by using two iron plates as dividers on each side. The heat would then pass round the lower part of the side of the boiler, return near the upper part of the side, and thence go along the top up the chimney. Iron plates 7 or 8 inches wide are very good for this purpose. Soot-doors must be provided for all these flues. Like the writer at page 15, we have made water circulate in all modes, even to going downhill; but it is much better that the pipe should rise from the boiler, and then go and return on a level until it dips down to the bottom of the boiler. It is still better, in our opinion, when there is a slight rise to the farther end, with an open air-pipe there, and then a similar decline to the bottom of the boiler; and we say this after having been under the necessity of working many plans. The most interesting part of the article at page 15 is that relative to the importance of having hot-water pipes on a level, and having as few returns as possible. Not long since we heated a small house by taking round three pipes on a level beneath a stage, so as to leave a pathway free in front and at back. The boiler was placed at the north-west corner. There was one flow and one return. When the flow arrived at its right position it was joined to the usual manner to three pipes, and these went round the west end, the south side, the east end, and the north side to no great distance from the boiler. In that space the rise all round would be about 3 inches. At the highest point, just where the three pipes were changed into the one to return again to the boiler, an open air-pipe was inserted. With the exception of this short piece visible that joined the return, all the pipes were flow-pipes, and nothing could answer better; the chief advantage being the uniform heat in the pipes all through. The steam or evaporating-pipe alluded to, page 15, we think you will understand better if you suppose that the flat iron pipe is merely an open level tank, and the 2½-inch pipe that goes through it from end to end is intended to heat the water in the pipe or tank. All that is necessary is to connect that 2½-inch pipe in the tank with the flow-pipe near the boiler, and with the return-pipe at the other end. The circulation will then be as complete in that pipe in the trough as anywhere else.

Flower Beds (*An Amateur*).—Both your plans No. 1 and No. 2 would look well if suitably planted. No. 1 is the more proportional of the two, but the ends of your square figures should be curved-in to correspond with the curve of the circles. Notwithstanding this, we much prefer No. 2, and chiefly because it breaks in on the stiff monotony of the outline. In No. 1 you have a 4-feet walk all round, and a band of turf between the walk and the beds. In No. 2 this regularity is broken in upon. The grass all round is wider, and round the centre, especially, the width is unequal or diversified, which of itself will be a great advantage. The fault of No. 2 is the want of balance in the size of the beds, and the narrowness of the turf between the beds at places. We would have none less than 4 feet. We would alter it thus: Reduce your centre circle to 6 feet in diameter, and add a foot to the grass and a foot in width to the four beds round it. Reduce your four circles from 6 to 5 feet in diameter. We do not agree with you as to substituting an oval for the two end figures. We do not think you can better the outline, but we would lessen the size by placing the two curved inside lines from 2 to 3 feet nearer the boundary. Pencil a group as thus suggested, and you will see you will have more room for turf, and the beds will be better balanced.

Geranium (*D. F. J. K.*).—We cannot attempt to name the varieties of florists' flowers.

Waste Lands (*A Constant Reader*).—We know of no work on their cultivation exclusively. Arthur Young's "Agricultural Surveys" of various counties give information on the subject.

Garden Architecture—Emigration (*A Novice*).—We think "Garden Plans" and "Greenhouses for the Many," both published at our office, would supply the information. We are told by a good authority that Victoria in Australia is the best new home for gardeners.

Planting a Span-roofed House (*A Market Gardener*).—We would advise planting both sides of your span-roofed house with Vines 4 feet apart, as thus you would have the house furnished sooner, even if afterwards you took the Vines across so as to fill both sides of the roof. We would in general only take one stem to a Vine instead of two, but if one became very strong you could give it more room. Planting at 4 feet apart, the stems on crossing would thus ultimately be 2 feet apart; at that distance a great weight of Grapes can be cut, but you can expect nothing to grow under the Vines. The Vines you name are good late sorts. We are not so sure of Mrs. Pince and Madresfield Court hanging so long. We have no doubt you will succeed very well with the trees as bushes in the orchard house, if the roots be curtailed at times; but after trying such modes largely we think that for economy and profit we would plant the trees on each side, and train them on a slope 18 inches from the glass. Vines may be grown 7 feet apart; but even then the shade will injure the colour of the Peaches.

Celery Lifting (*A Lady in Cheshire*).—It is not a good plan to lift Celery and store it in a potting shed, for it parts with a considerable amount of moisture, and on that account loses crispness and flavour. It ought to be left in the ground, and protected with litter in severe weather, but remove the covering when it is mild.

Pigeons' and Fowls' Dung (*Aspire*).—As both are powerful manures they should not be applied in such great quantity as stable or farmyard manure. A dressing just sufficient to cover the surface is enough, and should be pointed-in with a spade. We have given with advantage a dressing half an inch thick to Onion beds. Both are valuable manures for every description of vegetable crop.

Hotbed of Dung and Tan (*G. A. S.*).—We do not approve of mixing dung and tan together in forming hotbeds, not but that the mixture answers well enough for bottom heat, giving a steady heat, but the tan spoils the manure. We would, therefore, make a shell or lining of the stable manure, say 18 inches wide all round the bed, carrying it up to the required height, which at this season will be 6 feet at back, and 5 feet in front, and fill up the centre with fresh tan. The oily cotton waste you may mix advantageously with the manure in the proportion of one part to four of stable manure, and if you have sufficient to raise a bed 5 feet high at back, and 4 feet high in front, we should dispense with the tan.

Heading-back Maiden Apple, Pear, and Plum Trees (*Spero*).—We would not head back the trees more than 3 feet, as we presume you wish them to form pyramids or bushes, and this will give you shoots sufficiently near the ground. These side shoots should be encouraged, not stopping the lowest ones until they have grown a foot, nor the leader until it has made that length of shoot; then take out their points. If, from the top, strong shoots start besides the leading shoot, stop them at the third leaf; this will induce the lowest side shoots to push freely.

Cutting the Leading Shoots of Cupressus and Thuja—Peach Tree Gumming (*Amateur*).—You may cut off the leading shoots of Cupressus and Thuja without disfiguring them, and remove irregular growths. There are no shrubs that will bear pruning better than Thujas and Cupressus. We have some that are cut into close pyramids. We do not know what you can apply to the stem of a Peach tree badly gummed. There is no remedy. It is probably a consequence of the tree being on a foreign (Thum) stock. The belt of old Fir trees just outside the north corner of the garden cannot do any harm if the branches do not extend over the wall, or shade the ground. On account of the shelter they afford from north winds, we would not cut them down. If the branches extend over the wall and cause shade or drip, it may be desirable to lop, and perhaps cut down the trees. Remember that it is easier to cut down trees than to rear others that will afford the shelter of those removed.

Border for Climbers—Liquid Manure (*Black Edge*).—We highly approve of your taking up the concrete. We would make the width 2 feet, and if possible 3 feet, take out the soil, put in 9 inches of drainage, and then 2 or 3 feet of soil. The border would be far better than the boxes. A Myrtle trained to the wall would thrive if protected from frost in very severe winters. We would remove the offset at once, and place in the water two or three pieces of charcoal about the size of a nut. Bedroom slops are useful as a manure, if diluted with six times their bulk of water. They may be poured between the rows of growing crops of vegetables, or used in an undiluted state on ground before cropping.

Double White Violets, &c. (*H. Vincent*).—Write to some of the principal florists who advertise in our columns.

Treatment of Vines (*A. D.*).—Remove any loose bark from your Vines, and paint the stems with a mixture composed of 4 ozs. of sulphur, 2 ozs. of soft soap, and a small portion of soot, to half a gallon of water. The vinery started at the end of January should have a night temperature of 45° to begin with, gradually increasing it, so that by the time the shoots have grown an inch, 60° may be attained. Increase it in two weeks to 65°. In all cases allow a rise of 5° by day from artificial heat, and of 10° to 15° from sun heat. Syringe the Vines twice a-day until the buds break, when syringing should be discontinued.

Vines in Pots (*Essex*).—Your young Vines had the proper treatment until you say that in May, "they were much shaded by the permanent Vines." They would not be likely to form fruit-buds under such highly disadvantageous circumstances. The position to which you removed them, "the front stand of a plant house," was not good; they required more heat than they obtained there. We obtain fruiting canes of the strongest description from eyes inserted the same autumn, growing them on in a temperature of not less than from 60° to 65° at night after they are fairly started, but they must not be under shade. You should have shifted them into their fruiting pots by the end of July. As you have placed the Vine eyes on pieces of turf upon a Pine-bed, you will find full instructions how to proceed in No. 513, page 61, of last year's Journal of Horticulture. The Vines which did not show bunches try in both ways, but grow the largest portion from a single eye at the base of the cane. The fruit-buds must be formed and thoroughly matured before the leaves fall in autumn.

Peach House (*A. T.*).—Your trellis should be from 12 to 15 inches from the glass, instead of 6 inches. Have from 18 to 24 inches of good soil above the concrete. We prefer the saddle boiler and 3 or 4-inch pipes, but we like conical and tubular boilers very well, the simplest the best. A boiler with furnace fittings for such a long house would cost about £8, and two rows of pipes on each side would be necessary. Good 4-inch pipes will cost from 2s. 3d. to 2s. 6d. per yard, without the workmanship. Pipes may be purchased at any price; we lately heard of some put up very cheaply, but they proved to be poor rain-water pipes, dear at any price when used for hot water. We cannot recommend tradesmen. If particular, have a clear specification and a contract, and any of our advertisers will do the work well.

Conservatory (*Leamside*).—The best arrangement we can think of for such a house, 14 feet wide, would be a border all round, except opposite the plate-glass window, of 18 inches in width—wide enough for climbers—with a shelf or trellis-work all round of the same width, at about 3 feet from the ground, except opposite the window. That window we would take to the floor as a door, unless you can walk at once from the drawing-room into the central output of the conservatory. Then with a walk 2 feet 9 inches all round you will have a base for your central stage of 5½ feet. If you will be satisfied with a 30-inch path you will have a 6-feet base for your stage. Many would prefer a 3-feet pathway to give room to the ladies, even if thus they curtailed either

the side shelves or the central platform. This platform we would either have flat, 3½ feet from the ground, or, if a stage, have two or three shelves on each side, the slope facing east and west. There are three modes by which you can heat the house effectually. The pipes may be placed above ground under the side shelves, and if 6 inches from the climbers will not hurt them, and a thin board might be placed between the pipes and the stems of the climbers; but then we presume it would not do to have the pipes opposite the window, nor yet opposite the wide part in the centre. In this case the boiler could be placed at the north-west corner, pipes taken as far as the window on the west side, and right round as far as the wider part on the other. Three 4-inch pipes would be required. The neatest mode, if you can sink your boiler enough and do not mind a little more expense, would be to form a trench for your pathway, with a brick wall on each side, take three pipes all round in the trench, and cover the opening with galvanised-iron grating. In cold damp weather that grating will be very pleasant to the feet, especially if thin-soled boots are used. The third mode, and a very simple one, is to carry both your flow and return pipe from the boiler underneath the border and pathway, and then rise and commence at the north-west side, and take the pipes right round the house under the central platform, where they would be entirely out of the way. We would carry the pipes round either on a level, or, better still, with a rise of 2 or 3 inches, insert an air-pipe at the farther end, and make the connection at once with the return-pipe to the bottom of the boiler. To keep out frost, two pipes round under the platform would do. To keep plants in bloom in winter, or to force them, three 4-inch pipes would be better, placing them in such a position that all the heating would be in the centre of the house. We think the form of boiler is not of much consequence, and if you find the tubular so much to your satisfaction, we would advise you to have what suits you best. You will see other remarks on placing the heating pipes under the central stage. The pipes are thus quite out of the way.

GLAZING WITHOUT LAPS (*X. Y. Z.*).—Much less air finds its way into a house glazed without laps than into one with them. The danger lies in the glass being placed closely side by side, and no room being left in the groove, as in Mr. Peach's case, for the glass will suffer from expansion. We have no doubt that the zinc bars will answer, but as to their durability we will say nothing. Zinc roofs were recommended at one time because they would not oxidise or rust out, but they wear out, and are very sensitive to expansion and contraction by heat and cold. We would paint zinc bars if using them, but our experience does not enable us to speak decidedly.

SOWING THE BERRIES OF THORNS, HOLLIES, BAYS, AND BERBERIS DARWINII (*Dermod*).—It is not necessary to take off the pulp. They may be sown as they are, though it is usual to place the Thorn haws in a heap, cover them with soil for a twelvemonth, and then sow from the three-quarters to an inch deep. You may do this or sow, but the seedlings will not appear until the second year. The same remarks apply to the Holly and Bay, but in the case of the Berberis the pulp may be separated by washing, and the seeds sown in sandy soil in March. They should all be sown in the open ground early in March, choosing a warm sheltered spot for the Bay.

BEET FOR A RIBBON BORDER (*Trethowel*).—The best we have grown for this purpose is Dell's Crimson. Sow it in pans during the second week of April, and plant out the seedlings in the second or third week of May. We have sown it where it is to remain in the first week of May, thinning-out the plants to 8 or 9 inches apart, and they were as good as the transplanted seedlings. Amaranthus tricolor is not nearly so good as Beet, not so hardy, and altogether very different.

LATE PEAS (*Q. Q.*).—For producing a late supply of Peas, Ne Plus Ultra is excellent, and should be sown at the end of June; and Imperial Wonder is a good late sort, which should be sown at the same time. To fill-up the gap between Ringleader and Veitch's Perfection, Maclean's Princess Royal and Premier are excellent sorts.

ANNUALS FOR LATE FLOWERING (*Idem*).—They are very uncertain subjects for producing a late supply of flowers for cutting, but we find the large-flowered Emperor Stock and Phlox Drummondi exceedent for the purpose. The seed should be sown early in April in gentle heat. We have also had Asters in fine bloom early in October, from a sowing made at the end of April; Senecio elegans from seed sown at the same time in heat and the seedlings planted out; Sweet Alyssum and Candytuft, the latter sown early in June, and the former early in May. Calliopsis Burridgii flowers late, and so do Branching Larkspurs sown in April. Centranthus macrosiphon sown the last week in May, and Sweet Pea the second week in May, will flower until frost. The Tom Thumb varieties of Nasturtium are good sown the third week in April, and no doubt there are many others which do not occur to us at present. Crimson King Verbena is a satisfactory bedder, but would not do outside Purple King, which should either be raised or the positions reversed. Frogmore Late Pine Strawberry is superior to Elton, and is quite as late. For a late supply the situation should be open, but we do not think anything is gained by growing the plants on north borders. Cockscomb is an excellent Strawberry and would thrive with you.

CATERPILLARS IN LEAF MOULD (*W. Nock*).—The caterpillars are those of one of the many species of daddy-longlegs (Tipula sp.). They attack the roots of many plants.—I. O. W.

NAMES OF FRUITS (*D. F. J. K., Virginia*).—The two Pears are Chaumontel. They are now over-ripe, and becoming as usual bitter. Their shrivelling before ripening arises, probably, from their not having been well matured before they were gathered. (*Subscriber*).—It is not easy to name a Grape from seeing only three berries; still we venture to say that yours is Mrs. Pince.

POULTRY, BEE AND PIGEON CHRONICLE.

BLACK COCHIN-CHINAS.

I THINK your reporter has been a little severe generally on the Black Cochins exhibited at the late Bristol Poultry Show, and especially so on my unfortunate seven-months-old cockerel, which he designates a "miserable so-called Black Cochin." I shall not be sorry if it should give rise to a useful discussion on this breed, which I believe is destined to be very shortly as much in request as any of the other varieties of Cochins, if not more so. I can vouch for the purity of the birds shown by myself at Bristol, for I obtained the parents direct from Shanghai about two years ago, and I keep no other breed of fowls. If your reporter had been accustomed to see Cochins as they are found in China, he would be astonished at the difference which exists in the breed as we have it now exemplified in the Buff variety. The greatest improvement has taken place, and this, I think, will also be the case with the Blacks when more known. At any rate, I shall not be discouraged in my attempt towards such improvement.

It is generally supposed to be impossible to breed the Black Cochins true to feather; this is very likely to be the case if they are the result of the cross (referred to in the "Poultry Book" edited by Messrs. Wingfield and Johnson, page 13) between the White and Buff varieties, which produces, I believe, a Black, but which, after the first or second moult, shows white feathers; and this it was which induced me to obtain some birds direct from Shanghai, where I have friends, who selected and sent me my first birds.

I should like to say a few words about age, in the hope that judges will discourage as much as possible that which I fear exists to a great extent—viz., understating ages, or rather showing birds over a year old as cockerels and pullets. This I observe you have referred to in your remarks on the Dorking cockerel class at Bristol, and there is no doubt that this very unfair practice extensively prevails.—C. M. HOLE, *Tiverton*.

SILVER-SPANGLED HAMBURGHS.

HAVING attended several of the principal shows, and being to some extent a Hamburgh fancier, I was struck with the difference in what are now called Silver-spangled Hamburghs and those exhibited a few years ago. On reference to the second edition of the "Poultry Book," I find illustrated there a bold, well-shaped, white bird, evenly and distinctly spangled with black. On examining the prize pens at the Crystal Palace Show, I saw what I thought were black birds slightly pied with white, the white spots apparently running one into the other.

Mr. Beldon, in a letter published in an American paper, writing of Silver-spangled Hamburghs, states that they should be heavily and distinctly spangled; now, I maintain that the present breed of show birds are not distinctly spangled.—J. K. O.

WHAT A RAILWAY CAN DO.

WE so often hear complaints, and justly so, I think, of railway neglect in the conveyance of poultry to and from shows, that I think the following instance of celerity may, perhaps, be worthy of note. I had a pen of Golden Polands at the Durham Show, the Secretary of which was requested to forward the pen to the Edinburgh Show. All were to be at Edinburgh by Friday night, or at the very latest by Saturday morning at eight o'clock. Judge, then, of my chagrin to find my birds safe at home on Friday night, instead of just then being about arriving at Edinburgh. However, an hour or two afterwards, on consulting "Bradshaw," I found that if I sent a pen by mail train leaving Louth at eighteen minutes to 9, there was just a chance that they would get to Edinburgh by 8.5 in the morning; so I packed up a pen and despatched them, and as I could only prepay the carriage to Berwick, I placed a large card on the top of the hamper, requesting the railway officials not to remove the hamper from the train at Berwick, but to send them on to Edinburgh. They arrived, and won a prize; thus traversing a distance of fully four hundred miles in about eleven hours and a half.—G. W. B.

ANY OTHER VARIETY OF BANTAMS.

I AM sure Black Bantam breeders will say with me it is very hard that we cannot be treated like all other exhibitors. We pay the same entrance money, and have to meet in our Any variety class five or six different breeds—viz., Blacks, Whites, Gold-laced, Silver-laced, Japanese, Pekins, and of course it becomes purely a matter of taste with the Judges which shall have the prizes. How often do we see Pekins first, Laced second, and ifa third prize is given Blacks get it. We have few shows where Blacks have a class, and note when they have as a rule it is a good class numbering from ten to twenty pens. Of course, breeders of White and Laced Bantams may find the same fault. Now, what we want is either separate classes for all sorts, or dividing as follows: first, Blacks and Whites; second, Gold-laced and Silver-laced; third, Any other variety

of Bantams. I would ask all breeders who have to compete in the Any other variety class as it is at present, to give their opinion on the subject, and to bring the matter fairly before the committees with which they may come in contact. I hope some of our leading exhibitors in this class will take the matter up.—Fair Play.

NORWICH POULTRY SHOW.

This Show was held on the 17th and 18th inst., in the Corn Hall, Norwich. The awards were as follows :—

Game (Black-breasted and other Reds).—*Cock.*—1 and Cup, G. Sutton, Bootham. 2, W. Rayner, Ipswich. *hc*, S. Matthew, Stowmarket (2); F. Harding, Chingford; E. Aykroyd, Eccleshill; A. Haslam, Hyndley. *Hen.*—1, S Matthew. 2, E. Aykroyd. *hc*, S. Matthew; A Haslam; H. E. Martin, Sculthorpe; E. Branford, Swaffham; T. Dyson, Halifax; G. Clements, Birmingham.

Game (Any other variety).—*Cock.*—1 and 2, S. Matthew (Duckwing). *hc*, J. Jeken, Eltham (Duckwing). *Hen.*—1, S. Matthew (Duckwing). 2, E. Aykroyd. *hc*, S Matthew (Duckwing); J. Jeken.

Dorkings.—*Cock*—1, L. Patton, Hillmore, Taunton. 2, Henry Lingwood, Barking, Needham Market. *hc*, J. Smith, Shillinglee, Petworth; Capt. C. E. Bignold, Norwich. *Hen.*—1 and Cup, Henry Lingwood. 2, Mrs. G. Clarke, Long Sutton. *hc*, Rev. E. Bartrum, Great Berkhampstead; T. Briden, Cononley; F. Parlett, Great Baddow; O. E. Cresswell, Early Wood, Bagshot; L. Patton.

Cochin-China (Cinnamon or Buff).—*Cock.*—1 and Cup, Lady Gwydyr, Ipswich. 2, H. Lloyd, jun., Hansworth. *hc*, E. R. Gray, Kensington Gardens, London; Henry Lingwood; J. Long, Plymouth. *Hen.*—1, C. M. Stickings, Wye. 2, Lady Gwydyr. *hc*, Mrs. A. Vigor, Southfield, Uxbridge; E. Fearon, Whitehaven; S. R. Harris, Cusgarne; Henry Lingwood.

Cochin-China (Any other variety).—*Cock.*—1, Lady Gwydyr. 2, R. S. S. Woodgate, Pembury (White). *hc*, E Fearon; J. M. Otter, Newark (Partridge); F. Brewer Lostwithiel (White); R. S. S. Woodgate; Horace Lingwood, Creeting (2). *Hen.*—1, R. S S. Woodgate (White). 2, Horace Lingwood. *hc*, E. Fearon; R. S S. Woodgate (White); Horace Lingwood; Lady Gwydyr.

Brahma Pootra (Dark).—*Cock.*—1 and Cup, T. F. Ansdell, St. Helens. 2, Horace Lingwood. *hc*, C. P. Hart, Eaton, Norwich; Horace Lingwood; Lady Gwydyr. *Hen*—1. Lady Gwydyr. 2, Hon. Mrs. A. B. Hamilton. Woburn. *hc*, T. F. Ansdell; C. P. Hart; Dr. Holmes; F. L. Turner, Dorchester; Rev. J. D. Peake, Laleham; Horace Lingwood.

Brahma Pootra (Light)—*Cock*—1, Mrs. A. Worthington, Burton-on-Trent. 2, H. Dowsett, Pleshey. *hc*, Mrs. A. Worthington; F. B. Astley, Norwich; P. Haines, Diss; L. Pean, Chepstow; H. Mitchell. *Hen.*—1, J. R. Rodbard, Wrington, Bristol. 2, Mrs. A. Worthington. *hc*, Mrs. A. Worthington; J. Drake, Ongar; H. Dowsett; J. R. Rodbard.

Hamburghs (Gold or Silver-pencilled).—1 and Cup, R. R. Parker, Ipswich. 2, W. Tickner, Ipswich.

Hamburghs (Gold or Silver-spangled)—1, Ashton & Booth, Mottram. 2, J. B. Lakeman, Ipswich. *hc*, L. Wren, Lowestoft; W. Tickner; R. Wilkinson, Guildford; H H. Stickings, Ashford; N. Barter.

Spanish.—1 and Cup, Mrs Tonkin, Bristol. 2, J Thresh, Bradford. *hc*, Col. J. Cockburn, Brackendale, Norwich; Boulton & Gliddon, Bristol

Any other Variety.—*Cock.*—1, W. Dring, Faversham (Crève-Cœur). 2, J. Hinton, Warminster (Silver Poland). *hc*, Miss J Cross, Brigg (Crève-Cœur); W. K. Patrick, West Winch (Poland); A. Cruttenden, Haywards Heath (Gold-spangled Polish); W. Tippler, Chelmsford. *Hen.*—1, Cup, and Commended, W. K. Patrick, Lynn (Poland). 2, F. Brewer (Houdan). *hc*, W. Dring (Houdan); C. H. Smith, Radcliffe on-Trent (Crève-Cœur)

Any Variety.—*Cockerel*—1 and Cup, J. Thresh (Black Spanish). 2, Lady Gwydyr. *hc*, C. Maggs, Melksham (Black Hamburgh); W. K. L. Clare, Twycross (Indian Game); J. L. Hinton (Silver Poland); Horace Lingwood (Partridge Cochin). *Pullet.*—1, Lady Gwydyr. 2, H. Lingwood. *hc*, J. Thresh (Black Spanish)

Bantams (Game).—1 and Cup, W. Adams. 2 J. W. Morris, Rochdale. *hc*, H. P. Leech, Bury St. Edmunds; Hon. Mrs. Paget, Hoxne, Scole; J. M. Robinson, Sunderland; W. Adams, Ipswich; W. B. Jeffries, Ipswich (2).

Bantams (Any other variety).—1, Rev. F. Tearle, Gazeley Vicarage, Newmarket (White). 2, B. S. Lowndes, Stony Stratford (Pekin). *hc*, J H. Paget, Loughborough (Cuckoo); Hon. Mrs. Paget (Japanese); S. & R. Ashton, Mottram (Black); M. Leno (Laced).

Selling Class.—1 and Cup. Lady Gwydyr (Cochin). 2, W. Boyes, Beverley (Game). 3, Hon. Mrs. Paget (Brown Red Game). *hc*, A. Page, jun., Oulton, Lowestoft; E. Lantour, Ampthill (Dark Brahma); R. Loft, Woodmansey (Sultan); R. Brownlie, Kirkcaldy; Horace Lingwood (Partridge Cochin); W. Tippler (Houdan).

Selling Class.—*Hens.*—1, H. Dowsett (Brahma) 2, Lady Gwydyr (Cochin). 3. R. Loft (Sultan). *hc*, L. Wren (Gold-spangled Hamburgh); B Warner, Upton (Dark Brahma); J. Drake (Dark Brahma); H. Brown, Putney Heath; B. Postle, Gazeley (Black Red Game); J. B. Lakeman (Golden-pencilled); W. Rayner (Black Red Game).

Selling Class.—*Cock or Cockerel.*—1, R. Loft (Sultan). 2, W Boyes (Game). 3, Lady Gwydyr (Cochin). *hc*, W. Cutlack, jun., Littleport (Dark Brahma); Miss J. Cross (Crève-Cœur); W. K Patrick (Poland); W. Dring (Crève-Cœur); H. Brown; R. R. Parker (Gold-pencilled Hamburgh); R. Brownlie; Horace Lingwood; W. Rayner (Brown Red and Duckwing Game); W. F. Chickley Buff Cochin),

Ducks (Aylesbury)—1 J. Drake. 2, A. W. Partridge, Sprowston.

Ducks (Rouen).—1, F. Parlett. 2, J. Drake.

Extra Class.—*hc*, J. N. Waite, Norwich (Toulouse Geese, Swans).

PIGEONS.

Carriers.—1, F. W. Metcalfe, Cambridge. 2, H. Yardley, Birmingham. *hc*, T. Chambers, Northampton.

Balds or Beards.—1, S. Morling, King's Lynn. 2, H. P. Dwelly, Peckham.

Tumblers.—1 and 2, J. Ford, Monkwell Street, London. *hc*, H. P. Dwelly.

Barbs.—1, T. Beadows, Boston. 2, C. Norman, Ipswich.

Fantails.—1, A A. Vander Meersch, Tooting. 2, J. F. Loversidge, Newark. *hc*, J. F. Loversidge; H. Yardley.

Pouters.—1, T. H. Dows, Boston. 2, J. T. Cater, Colchester.

Any other Variety.—1, H. P. Dwelly (Jacks). 2. T. C. Marshall, Peterborough (Magpies). *hc*, J. T. Cater; Col. Cockburn (Black Trumpeters). *c*, H. Yardley.

Selling Class.—1, A. A. Vander Meersch. 2, H. P. Dwelly (Owls).

CANARIES.

Norwich.—*Clear Yellow.*—1 and 2, J. Mortimer, West Smithfield, London. *hc*, G. & J. Mackley, Norwich; G. Humbold, Yarmouth. *c*, F. Willis, Norwich. *Clear Buff.*—1, F. Willis. 2, G. & J. Mackley. *vhc*, J. Mortimer; G. & J. Mackley. *hc*, F. Willis; T. S. Merry, Norwich. *c*, J. Jeffes, Ipswich.

Norwich.—*Marked or Variegated Yellow*—1, J. Mortimer. 2 and *vhc*, G. and J. Mackley. *c*, F. Willis. *Marked or Variegated Buff.*—1, J. Jeffes. 2 and c, J. Mortimer. *vhc*, G. & J. Mackley. *hc*, F. Willis.

Norwich.—*Ticked or Unevenly-marked Yellow*—1, G. & J. Mackley. 2, J. Chapman, jun., Norwich. *vhc*, J. Mortimer. *c*, F. Willis. *Ticked or Unevenly-marked Buff.*—1 and *c*, J. Mortimer. 2, J. & J. Mackley. *vhc*, J. E. Thirkettle, Norwich; F. Willis *hc*, F. Willis.

Norwich—*Crested Yellow*—1, J. Mortimer. 2, J. Jeffes. *Crested Buff.*—1, J. Mortimer. 2. J. Jeffes. *vhc*, E. W. Lulham, Brighton (2). *c*, G. & J. Mackley; . Nichols, Norwich.

Lizard.—*Golden-spangled.*—1, G. N. Harrison, Belper. 2 and *vhc*, G. & J. Mackley. *Silver-spangled.*—1, J. N. Harrison. 2 and *vhc*, G. & J. Mackley.

Any other Variety.—1, R. Poole, Maldon (Buff Cinnamon). 2. G. & J. Mackley (Yellow Belgian). *vhc*, R. Poole; J. Cuthbertson, King's Lynn (Green Canary). *hc*, J. Mortimer (Cinnamon).

Six Canaries (Any variety).—1, J. Mortimer. 2, F. Willis (Norwich). *vhc*, H. Larke, Norwich. *hc*, G. & J. Mackley (Norwich).

Selling Class (Suitable for breeding).—1, F. Willis (Norwich). 2, J. Stannard. Norwich. *vhc*, J. Mortimer; G. & J. Mackley (Norwich). *hc*, W. Bunting.

Selling Class (For the best Canary).—1, G. & J. Mackley (Norwich). 2, W. Nichols. *vhc*, W. B. Hovell, Norwich; W. Bunting. *hc* and c, J. E. Thirkettle (Clear Buff and Crested Buff Orange).

Selling Class (Not competing for a prize)—*hc*, J. Quinton, Norwich (Australian Rosehill Parroquet and cage); J. Stannard. *c*, W. Nichols.

Goldfinch Mule.—1 and 2, G. & J. Mackley. *vhc*, J. Jeffes (2). *hc*, E. W. Lulham. *c*, J. Chadwick, Ongar.

Any other Cage Bird (Canaries excluded)—1 and c, G. & J. Mackley Australian Parroquet and Pied Linnet Mule). 2, H. Larke (Goldfinch). *vhc*, J. Banham, Norwich. *hc*, J. Jeffes (Bullfinch).

Judges.—*Poultry*: Messrs. Beldon and Adams. *Pigeons*: Mr. J. Percivall. *Canaries and other Cage Birds*: Messrs. Woodhouse, Fenn, and Clarke.

BATHGATE ORNITHOLOGICAL SHOW.

The Bathgate Ornithological Association held their fourth annual Exhibition and competition of poultry, Pigeons, and Canaries, on the 15th inst., in the Corn Exchange, and the weather being all that could be desired, a great number of the public visited the Show.

The different classes were well represented, and never since the Show was established have we seen such a collection of really good birds. *Dorkings* in both the adult and young classes, though not numerous, were very good, the first-prize birds in both classes having secured similar honours in nearly all the shows they have visited. The adult *Spanish* were a poor class, but of the young the first-prize pen was very fine, and never have we seen such fine faces and combs at Bathgate. This pen also secured the special prize for the best pen in the first three classes. *Hamburghs* were the largest class; many of the birds would not have disgraced a metropolitan show. The first-prize Golden and Silver-pencilled Hamburghs were really fine birds. The Golden-pencilled secured the special prize, but a good many thought it should have gone to the Silvers, as they were better matched than the Goldens. *Game* were not a numerous class, and all the birds appeared rather soft, excepting the Duckwings shown by the now famous Mr. Harley, Edinburgh, which also rightly secured the special prize in the Game department. Game *Bantams*, though numerous, were not so good as those shown here last year, many of them not being in a fit condition for competing.

Pigeons were well represented in nearly all the classes; the first-prize Tumblers and Carriers were remarkably fine. One great feature was an absence of dressing in the Toy classes.

The *Canaries* consisted of the finest birds in Scotland. Most of them had secured similar honours at the different open shows they had visited.

Dorkings.—1, J. Malcom, Langton. 2, D. Forrester, Linlithgow. 3, J. Young, Bathgate. 4, J. Stephenson, Chapelhall, Airdrie. *Chickens*—1, J. Malcom. 2, J. Waddell, Airdriehill, Airdrie. 3, A. M'Donald. Easter Moffat. 4, J. Brand, Bathgate

Spanish.—1 and 5, J. Young, Craigneuk, Motherwell. 2, J. Waddell. 3. J. Peat, Bathgate. 4, M. Young, Blackburn. *Chickens.*—1 and Special, J. Waddell, 2, J. Yuill, Airdrie. 3, D. Forrester. 4, Mrs. Gracie, Colinton.

Scotch Greys.—1, A. Hastie. Wilton, Carluke. 2, A. Dunlop, Paisley. 3, J. Meikleham, Thinacre, Hamilton. 4. W. Gibb, Armadale. *Chickens.*—1, W. Gibb. 2 and 3, J. Meikleham 4, R. White, Bathgate.

Hamburghs.—*Golden-pencilled.*—1 and Special, H. Russel, Clackmannan. 2, P. Hamilton, Gillhead, Wishaw. 3, H. Chalmers, Bathgate. 4, J. Frame, Motherwell. *Silver-pencilled.*—1 and 2. J. Young. 3. R Ferguson, Kirkton, Bathgate. 4, H. Chalmers. *Golden-spangled.*—1, J. Waddell. 2. T. Love. 3, J. Young. 4, J Love. *Silver-spangled.*—1, J. Moodie, Paisley. 2 and 4, D. Forrester. 3, A. Glen, Paisley.

Cochins.—1, A. Crawford, Airdriehill, Airdrie. 2, J. Stephenson. 3, J. More. 4, J. Peat.

Polands—1. W. Paterson, Airdrie. 2 and 4, W. Gibb, Cambusnethan. 3, A. Wylie, Johnstone.

Game.—1 and Special, D. Harley, Edinburgh. 2, J. Waddell. 3, R. Gray, Wishaw. 4, A. Flint, Airdrie.

Game Bantams.—1, W. Gibb. 2, Miss J. M. Frew, Kirkcaldy. 3, G. Sinclair, Bathgate. 4, R. Rodgers, Bathgate. *Any other Variety.*—1, J. Waddell. 2, Master A. Frew. 3, J Moodie. 4, J. Muirhead, Airdrie.

Ducks.—1 and 2, J. Meikleham. 3 and 4, R. S. W. Durham, Bathgate.

Turkeys.—1, J. Wilson, Riccarton. 2, J. Hamilton, West Calder. 3, D. Prentice, Blackburn.

Selling Class.—1, H. Russel. 2, W. Good, Airdrie. 3, J. Waddell. 4, W. Gibb.

PIGEONS.

Pouters.—1, 2, and Medal, J. Waddell. 3, R. & J. Anderson, Newcastle-on-Tyne. 4. M'Gill Skinner.

Carriers.—1, 3, Special, and Crystal Fountain, J. Brown. 2, M'Gill Skinner. 4, J Gray.

Tumblers.—1, A. Johnstone 2, J. Brown. 3. R. & J. Anderson. 4, D. Roberts.

Jacobins, Nuns, English Owls, and Turbits.—1, A Johnstone. 2, Miss B. P. Frew. 3, J. Gray. 4, T. Imrie.

Fantails.—1 and Special, J. Baillie. 2, F. W. Christie, Liberton. 3, Miss B. P. Frew. 4. D. Prentice.

Any other Variety.—1 and 3, R. & J. Anderson. 2, Miss J. M. Frew. 4, T. Imrie.

Selling Class.—1, J. Gray. 2, M'Gill Skinner. 3, R. & J. Anderson. 4, A Johnstone.

CAGE BIRDS.

Yellow—*Cocks.*—1 and 2, W. Mochrie, Lanark. 3 and 4, T. Scott, Carluke. *Hens.*—1. T. Scott. 2, J. Pettigrew, Lanark. 3, D. Duncan, Carron. 4, T. Morton, Linlithgow.

Buff.—*Cocks.*—1 and Special, J. Pettigrew. 2 and 4, D. Duncan. 3, W. Mochrie. *Hens.*—1, J. Watson, Linlithgow. 2, T. Scott. 3, W. Mochrie. 4, D. Duncan.

Yellow Piebald.—*Cocks*.—1, J. Pettigrew. 2 and 3, J. Pender, Edinburgh. 4, T. Scott. *Hens*.—1 and 2, T. Scott. 3, J. Pettigrew. 4, W. Mochrie.

Buff Piebald.—*Cocks*.—1 and 2, T. Scott. 3, W. Mochrie. 4, J. Pettigrew. *Hens*.—1, 4, and Special, T. Scott. 2, J. Lyle, Wishaw. 3, J. Purves, Edinburgh.

Green or Foul-feathered.—1. W. Mochrie. 2, T. Scott. 3, J. Pender. 4, P. M'Ginley, Coatbridge.

Judges.—*Poultry:* Mr. J. M'Nab, South Arthurlee, Barrhead; Mr. J. M'Innes, Paisley. *Pigeons:* Mr. James Huie, Glasgow. *Canaries:* Mr. John Smith, Coatbridge, and Mr. Robert Forsyth, Edinburgh.

DUBLIN POULTRY SHOW.

The following is the list of awards made at this Show, held on the 18th, 19th, and 20th inst. We must defer till next week our *critique*.

Dorkings (Coloured).—1 and 3, J. Martin, Claines, Worcester. 2, Hon. J. Massy, Limerick. *hc*, Mrs. Warburton, Kill, Naas; S. Mowbray, Killiney, Mountrath; G. A. Stephens; Countess of Tankerville, Chillingham Castle. *c*, W. H. King, Moss Mills, Rochdale; Rev. E. Bartrum, Great Berkhampstead.

Dorkings (Silver-Grey).—1, O. E. Cresswell, Early Wood, Bag-shot. 2, Miss De C. Drevar, Blackrock. 3 and *hc*, Mr. Warburton. *c*, Hon. J. Massy.

Dorkings (White).—1, J. C. Cooper, Cooper's Hill, Limerick. 2, No competition.

Cochin-China (Cinnamon or Buff).—1, H. Lacy, Mulhuddart. 2, Mrs. Allsopp, Hindlip Hall, Worcester. 3, H. Lloyd, jun., Handsworth. *hc*, W. H. Perrin, Loughlinstown. *c*, J. Sichel; Countess of Tankerville.

Cochin-China (Brown or Partridge).—1, C. W. Brierley, Middleton, Manchester. 2, T. Stretch, Ormskirk. *hc*, H. Lloyd, jun.; W. H. Perrin. *c*, G. A. Stephens, Dublin.

Cochin-China (White).—1 and 2, J. Sichel, Lark Hill, Timperley. *c*, J. F. Bewley, Blackrock.

Brahma Pootra (Dark).—1, H. Lacy. 2, T. S. Ansdell, Cowley Mount, St. Helen's. 3, Hon. Miss D. Pennant, Penrhyn Castle, Bangor. *hc*, Hon. Miss D. Pennant; E. Pritchard; J. C. Cooper; R. W. Boyle. *c*, Mrs. Warburton.

Brahma Pootra (Light).—1, J. R. Rodbard. 2 and 3, M. Leno, Dunstable. *hc*, Rev. N. J. Ridley, Newbury; Capt. Downman, Kingstown. *c*, J. Pares, Postford, Guildford; Capt. Downman; J. C. Cooper.

Creve-Cœurs.—1, J. Sichel. 2, J. C. Cooper. *hc*, Rev. N. J. Ridley; J. C. Cooper.

La Fleche.—1, G. A. Stephens. 2, Rev. N. J. Ridley, Macclesfield. *hc*, Capt. Downman. *c*, J. W. H. Thorp, Macclesfield.

Houdans.—1, F. W. Pim, Harold's Cross, Co. Dublin. 2, J. Sichel. *hc*, J. C. Cooper; G. A. Stephens; Mrs. R. K. Clay, Anglesey, Killiney.

Spanish.—1, E. Jackson, Finchfield, Wolverhampton. 2 and Extra 3, Hon. Miss D. Pennant. *hc*, Hon Miss D. Pennant; E. Jackson, Finchfield, Wolverhampton; J. Barlow, Chapelizod; Mrs. Allsopp; P. H. Jones, Fulham; C. W. Brierley. *c*, Miss De C. Drevar; H. Beldon, Goitstock, Bingley.

Hamburghs (Gold and Silver-pencilled).—1 and 2, H. Beldon. *c*, L. Stoney, Sandymount; Countess of Tankerville.

Hamburghs (Gold or Silver-spangled).—1, G. & J. Duckworth, Church, Accrington. 2, H. Beldon. *hc*, H. Beldon; Countess of Tankerville; G. & J. Duckworth.

Poland (White-crested Black).—1, Mrs. J. M. Procter, Hull. 2, Miss De C. Drevar. *hc*, P. Unsworth, Newton-le-Willows; R. P. Williams, Glaslinn, Clontarf; N. Cook, Chowbent; Mrs J. M. Proctor.

Poland (Gold or Silver-spangled).—1 and 2, H. Beldon. *hc*, P. Unsworth (2); R. P. Williams; H. B. Smith, Broughton, Preston; G. A. Perrin, Loughlinstown.

Game (Black or Brown Red).—1 and 2, C. W. Brierley. 3, G. F. Ward. *hc*, E. J. Poer, Limerick; G. A. Perrin (2). *c*, J. Cheston, Nantwich.

Game (Any other variety).—1 and 2, C. W. Brierley. *hc*, W. Johnson, Stanley, Liverpool; G. A. Perrin. *c*, T. Haffield, St. Helen's Bay.

Bantams (Game, Black or Brown Reds).—1, 2, and Cup, J. W. Morris, Rochdale. *hc*, H. Beldon; G. A. Stephens; H. C. Cullin, Galway; G. A. Perrin; J. R. Robinson, Sunderland.

Bantams (Game, any other variety).—1, Rev. F. Cooper, Ampney Crucis. 2, E. J. Poer.

Bantams (Any other variety).—1, B. S. Lowndes, Stony Stratford. 2, H. Beldon. *hc*, N. Cook; R. H. M'Corkell, Londonderry; M. Leno, Markyate Street (2); J. Sichel. *c*, Mrs. J. M. Proctor; Countess of Tankerville; G. A. Stephens.

Ducks (Rouen).—1, R. Gladstone, Broadgreen, Liverpool. 2, G. A. Stephens. *hc*, P. Unsworth; R. P. Williams; Mrs. Taylor, Ardgillan, Balbriggan; W. H. Perrin; S. Mowbray. *c*, Mrs. P. Taaffe, Castle Plunket.

Ducks (Aylesbury).—1, S. Mowbray. 2, J. C. Cooper. *hc*, R. P. Williams.

Geese.—1, Mrs. Warburton. 2, J. C. Cooper. *hc*, R. P. Williams; W. H. Perrin; Mrs. Warburton; Miss C. Chichester, Runnamote, Roscommon. *c*, Mrs. M'Donnell, Glasnevin (2).

Ornamental Waterfowl.—1 and 2, R. P. Williams. *hc*, R. P. Williams; H. B. Smith; M. Leno (2); J. C. Cooper; Countess of Tankerville; R. W. Boyle.

Turkeys.—1, Rev. N. J. Ridley. 2, Lord Crofton. 3, Miss C. Chichester. *hc*, J. C. Cooper; Countess of Tankerville. *c*, S. Mowbray.

Any other Variety.—1, Rev. A. G. Brooke, Shrawardine. 2, H. Beldon. 3, S. Mowbray. *hc*, R. Dane, jun.; Miss Brinkley, Castlenock; J. Sichel, Timperley; W. G. Holt, Church; N. Cook; J. Watts, King's Heath, Birmingham; R. Hawkins, Seabam. *c*, Hon. J. Massey; Mrs. Taylor; Mrs. N. M. O'Donnell.

Selling Class.—1, C. W. Brierley. 2, G. Furness. 3, S. Mowbray. *hc*, J. K. Milner, Cherbury, Blackrock; J. Barlow; S. R. M'Gee; Mrs. Warburton; C. E. M'Clintock, Crumlin; Mrs. P. Taaffe; F. W. Pim. *c*, Mrs. N. M. O'Donnell; Mrs. Warburton; J. C. Cooper.

Special Prizes (Lord Lieutenant's Prizes).—1, M. Barlow. 2, Miss Marmion, Phœnix Park, Dublin. 3, J. Barlow. *hc*, P. Smith, Mulhuddard; Miss Marmion; C. Dillon, Chapelizod. *c*, P. Smith; Miss Marmion.

SINGLE COCKS.

Dorkings.—1, J. K. Milner. 2, Mrs. Warburton. *hc*, J. C. Cooper.

Spanish.—1, Mrs. Allsopp. 2, Hon. Miss D. Dennant. *hc*, Hon. Miss D. Pennant; C. W. Brierley.

Game.—1, C. W. Brierley. 2, W. Johnston. *hc*, C. A. Perrin (2); G. F. Ward, Wrenbury.

Cochin.—1, Mrs. Allsopp. 2, H. Lacy. *hc*, H. Lloyd, jun., Handsworth; W. H. Perrin (2).

Brahmas (Dark).—1, H. Lacy. 2, Hon. Miss D. Pennant. *hc*, Hon. J. Massey; Mrs. Warburton; L. F. Perrin. *c*, Mrs. P. Taaffe.

Brahmas (Light).—1, Capt. Downman. 2, J. C. Cooper.

Houdans.—1, J. C. Cooper. 2, Withheld.

Creve-Cœurs.—1, E. J. Poer. 2, J. C. Cooper.

Hamburghs (Pencilled).—1, H. Beldon. 2, L. Stoney.

Hamburghs (Spangled).—1, H. Beldon. 2, No competition.

Game Bantams.—1 and 2, J. W. Morris, Dublin. *hc*, G. Maples, jun., Wavertree; G. Furness, Rawtenstall; J. R. Robinson; Ashley & Maitland; W. Adams, St. Clements, Ipswich.

Any other Variety.—1, J. K. Milner. 2, H. Beldon. *hc*, Capt. Downman-A. B. Dick; S. Mowbray.

PIGEONS.

Pouters (Blue Pied).—*Cocks*.—1, J. Wallace. 2, F. Gresham. 3, J. Montgomery. *vhc*, E. Horner, Harewood, Leeds. *hc*, J. Montgomery (2); P. H. Jones. *c*, J. Montgomery. *Hens*.—1, Cup, and *hc*, J. Montgomery. 2 and *hc*, F. Gresham. 3, E. Horner.

Pouters (Black Pied).—*Cocks*.—1, Cup, and *c*, J. Montgomery. 2, F. Gresham. 3, J. Wallace, Glasgow. *Hens*.—1 and 3, J. Montgomery. 2, F. Gresham. *hc*, E. Horner.

Pouters (Red Pied).—*Cocks*.—1, *vhc*, *hc*, and *c*, J. Montgomery. 2, J. Wallace. 3, E. Horner. *Hens*.—1, J. Wallace. 2 and 3, J. Montgomery. *c*, E. Horner.

Pouters (Yellow Pied).—*Cocks*.—1 and 2, J. Montgomery. *Hens*.—1, J. Montgomery. 2, J. Wallace. 3, E. Horner.

Pouters (White).—*Cocks*.—1, J. Wallace. 2, F. Gresham. 3, J. Montgomery. *vhc*, E. Horner. *hc*, F. W. Zurhorst. *c*, J. Montgomery; F. W. Zurhorst. *Hens*.—1 and 2, J. Montgomery. 3, E. Horner. *vhc*, P. H. Jones. *hc*, F. W. Zurhorst.

Pouters (Any other colour or marking).—*Cocks*.—1, J. Lohore. 2, F. W. Zurhorst. 3, J. Montgomery. *Hens*.—1, 2, and *c*, F. W. Zurhorst. 3, T. Rule, Durham.

Carriers (Black).—*Cocks*.—1 and 2, J. Montgomery. 3, J. C. Ord. *hc*, Col. Hassard, Curragh Camp; E. Horner. *Hens*.—1 and Cup, E. Horner. 2 and 3, Col. Hassard. *Young Pair*.—Cup, E. Horner. 2, J. Montgomery. 3, G. A. Whealand. *hc*, Col. Hassard. *c*, G. A. Whealand.

Carriers (Dun).—*Cocks*.—1, J. C. Ord, Lupus Street, Pimlico. 2, E. Horner. 3, G. A. Whealand, Cork. *hc*, J. Montgomery; Col. Hassard. *Hens*.—1 and 2, J. C. Ord. 3, E. Horner. *c*, J. Montgomery.

Carriers (Any other colour).—*Cock*.—1, E. C. Stretch, Ormskirk. 2, J. Watts, Birmingham. 3, Col. Hassard. *Hen*.—1, J. C. Ord. 2, J. Watts. 3, Col. Hassard. *Young Pair*.—1, Col. Hassard. 2, G. A. Whealand. 3, G. Hodgkinson, Erdington. *hc*, J. Montgomery; J. Dowling.

Tumblers (Almond).—1, Cup, and 3, J. Ford, Monkwell Street, London. 2, J. Fielding, jun., Rochdale. *hc*, J. Wallace. *c*, E. Horner.

Tumblers (Any other colour).—1, P. H. Jones. 2, G. South. 3, E. A. Seale, Kilgobbin, Co. Dublin.

Barbs (Black or Dun).—1, Cup, 2, and *hc*, J. Montgomery. 3, J. Dowling, Blackrock, Cork. *c*, J. Wallace; E. Horner.

Barbs (Any other colour).—1, J. Montgomery. 2, J. Dowling.

Barbs.—*Young*.—Cup, J. Montgomery. 2, J. Wallace. 3, G. A. Whealand. *hc*, J. Montgomery; J. Dowling.

Jacks (Red or Yellow).—1 and Cup, J. Lohore. 2, F. W. Zurhorst. 3, R. W. Smith. *hc*, J. Thompson, Bingley; F. Waitt. *c*, E. Horner.

Jacks (Any other colour).—1, W. B. Van Haansbergen, Newcastle-on-Tyne. 2, E. A. Seale. 3, J. Thompson. *hc*, E. A. Seale; W. B. Van Haansbergen.

Fantails.—1, J. Sharp. 2 and 3, E. A. Seale. *hc*, E. A. Seale; E. Horner.

Nuns.—1, P. H. Jones. 2, J. Watts. 3, E. Horner.

Trumpeters (Black).—1 and Cup, 2, and *c*, J. Montgomery. 3, J. H. Perrott.

Trumpeters (Any other colour).—1 and 3, E. Horner. 2, J. Montgomery. *hc*, J. Montgomery (2); J. H. Perrott.

Turbits.—1 and 3, E. A. Seale. 2, H. L. Tivy. *hc*, J. Fielding, jun. *c*, P. H. Jones; O. E. Cresswell.

Owls (Foreign).—1 and 2, J. Fielding, jun. 3, E. Horner. *hc*, P. H. Jones. *c*, E. C. Stretch.

Owls (English).—1 and Cup, T. M'Donnell. 2, F. W. Zurhorst. 3, W. Johnson.

Magpies.—1, J. Dowling. 2, H. Beldon. 3, L. F. Perrin. *hc*, E. Horner (2).

Dragoons.—1 and Extra 3, G. South, New Bond Street, London. 2, P. H. Jones. 3, F. Graham. *hc*, G. South (2); P. H. Jones. *c*, E. Horner; S. Holroyd.

Antwerps.—1 and 3, F. W. Zurhorst. 2, E. Horner.

Any other Variety.—1, E. Horner. 2, G. South. 3, E. C. Stretch. 4, J. Thompson. *c*, T. M'Donnell; H. Beldon.

Selling Class.—1, P. H. Jones. 2, H. Beldon. 3 and 4, E. A. Seale. *vhc*, R. W. Smith. *c*, J. K. Milner; E. A. Seale; H. Beldon (2); R. W. Smith.

Four Pairs, exclusive of Pouters, Carriers, and Tumblers.—Cup, W. B. Van Haansbergen. 2, P. H. Jones. 3, E. A. Seale. *hc*, J. Dowling. *c*, N. Morton.

CANARIES.

Belgian (Yellow).—1, M. Sheridan. 2, J. Morris. *hc*, P. Smyth, Dublin; W. Donegan. *c*, P. Kearns; G. Young.

Belgian (Buff).—1, M. Sheridan, Dublin. 2, G. Young, Dublin. *hc*, W. Donegan, Dublin. *c*, J. Belton.

Norwich (Yellow or Buff).—1, W. H. Culverhouse, Dublin. 2, J. Belton. *hc*, P. Kearns. *c*, F. Wright, Dublin.

Lizards (Green).—1 and *c*, J. Heaps, Dublin. 2, F. W. Zurhorst. *vhc*, J. Morris, Dublin. *hc*, J. Belton, Dublin (2); W. H. Culverhouse.

Crested.—1, M. Sheridan. 2, P. Kearns. *c*, G. Young.

London Fancy or other Variety.—1, P. Kearns. 2, Miss Millar, Monkstown.

Goldfinch or Linnet Mules.—1 and 2, J. Morris. *hc*, F. Wright; P. Quinn, Rathmines. *c*, L. F. Perrin.

Parrots (Grey).—1, J. Morris. 2, Mrs. Staunton, Cappagh, Clondalkin.

Parrots (Green).—1, J. Baxter. 2, J. Morris.

Cockatoos or Lories.—1, P. Kearns. 2, J. Lawrence, Dublin.

Love Birds or Zebra Parakeets.—1 and *hc*, P. Kearns. 2, J. Morris. *c*, P. J. Mullen, Dublin; J. O'Loughlen, Dublin.

Parakeets or other Varieties.—1, J. Morris.

Blackbirds.—1, J. W. Kirwin. 2, P. Kearns.

Thrushes.—1, P. Quinn. 2, W. W. A. Wright, Dalkey. *hc*, P. Kearns.

Larks.—1, P. Kearns. 2, J. Dill, Dublin. *vhc*, Miss Perrin. *c*, M. M. Dill.

Magpies, Jays, or Jackdaws.—1, L. F. Perrin.

Migratory Birds.—1, P. Kearns. 2, P. J. Mullen, Dublin.

Cardinal Finches and Virginian Nightingales.—1, J. Morris.

Foreign (Any other variety).—1, P. Kearns. 2, T. Beatty, Dublin. *c*, P. Kearns; R. J. Mullen.

Judges.—Mr. Edward Hewitt, Mr. R. Teebay, Mr. W. B. Tegetmeier, Mr. J. Frame.

SELKIRK POULTRY SHOW.

As regards numbers and quality this was the best Show ever held at Selkirk, there being nearly three hundred entries. The Rifle Drill Hall, in which the Exhibition was held, is an excellent place for the inspection of the birds, as the light is good and equal in all parts. Besides three money prizes in each class for pairs of birds, twelve handsome timepieces were offered as extra prizes for competition among the cock birds only in both the poultry and Pigeon classes.

The *Spanish* were fair on the whole, and both classes of *Dorkings* were very good. The special prize was won by an excellent Silver against a very fine Dark Grey. The first prize for *Cochins* went to Partridge, which won the special prize from the *Brahmas*. The latter were of the Dark variety. The first-prize cockerel in this class was very good and in excellent condition. Of the Silver-pencilled *Hamburghs* only one pen was good, the rest being worthless; but the Golden were much better, and the timepiece was awarded to the second-prize cockerel. The Spangles of both colours were exceedingly good, and the special prize went to the Golden-spangles. There were four classes for *Bantams*, and the birds throughout were very good, but again to some extent spoiled by being placed in open pens. The timepiece was awarded to a Black cockerel, which was about

the most perfect that has been seen this season, and the pen was entered at the low price of £5. The Crêve-Cœur cock which was first in the Variety class was awarded the special prize against Spanish; and in *Ducks* the Aylesbury carried off the palm. The Selling class offered an excellent opportunity for purchasers.

If the classification was well carried out in poultry, it applied much more forcibly to the *Pigeons*. Tumblers, Fantails, and Jacobins competed for the first special; Carriers, Pouters, and the Variety class for the second; Nuns, Owls, and Turbits for the third; and for the awards we refer to the list. In Tumblers, Almonds were first and second, Piles third, and the quality of head, beak, and eye was very good. There were but four entries of Carriers, but the first-prize pair were of high character in all points. Fantails, as may be expected across the border, were very good in style and carriage. Mr. Park won with a pair in the highest order. Those of Mr. Loversedge appeared to be considerably overshown and out of condition, doubtless partly owing to their long journey. The first-prize Jacobins were Red, very good in hood and chain; the second White, a little too open in chain, but otherwise perfect; and the third good Reds. Nuns were good and the competition close; and the Owls one of the best classes in the Show, the first being Black Foreign, the second Whites, and the third Blue English. Of Turbits the Blues were first and Reds second, both pairs being perfect. In the Variety class the first were Black German Letz, the second Ice Pigeons, the third Black Barbs. Excellent Blue and White Dragoons, Ice, and Frillbacks were highly commended, and the Selling class was exceedingly well filled.

Unfortunately the wetness of the first day interfered with the receipts at the gates.

SPANISH.—1, J. Thresby, Bradford. 2 and 3, D. Waugh, Melrose. 4 and c, J. Laidlaw, Langholm.

DORKINGS.—1, Special, and 4, D. Hardie, Friesthaugh, Hawick. 2, J. White, Warlshy. 3, H. Stephenson, Tillyfour, Aberdeen. *hc*, J. Mathison, Selkirk. *Chickens.*—1, J. White. 2, D. Hardie. 3, W. Swaun, Bedlington. 4, F. L. Roy, Nenthorn, Kelso. *c*, J. Fotheringham, Dalbeattie; A. Inglis.

COCHIN-CHINA.—1 and Special, J. White, Whitley, Wakefield. 2, J. Pollock, Glasgow. 3, J. Brown, Hull. 4, R. Hind, Morpeth. *hc*, Mrs. T. Brown.

BRAHMA POOTRA.—1, R. Brownlie, Kirkcaldy. 2, R. Shiell, Swalwell. 3, D. Annan, Moonzie, Cupar, Fife. 4, J. Stuart, Helensburgh. *hc*, H. Stephenson; Mrs. T. Brown.

HAMBURGHS.—*Golden-pencilled.*—1, W. R. Park, Abbotsmeadow, Melrose. 2 and Special, A. Pratt, Kirkcaldy. 3, R. Dickson, Selkirk. 4, J. Blackburn, Morpeth. *Silver-pencilled.*—2, J. Ashworth, Burnley. 3, Lady M Scott, Bowhill, Selkirk. 4, J. Kerss, Selkirk. *Golden-spangled.*—1, T. May, Wolverhampton. 2 and Special, R. H. Ashton, Mottram, Manchester. 3, J. Scott, Galashiells. 4 and *c*, R. Dickson. *hc*, Mrs. B. Sweeten, Penrith. *Silver-spangled.*—1, Ashton & Booth, Broadbottom, Mottram. 2 and 3, W. R. Park. 4, J. Ashworth. *c*, R. Hogg, Selkirk.

GAME.—Special, J. Brough, Carlisle. 1, R. Little, Carlisle. 2, J. Hodgson, Bradford. 3, D. Harley, Edinburgh. 4, W. Grice, Bootle, Carnforth. *Chickens.* —1, J. Hodgson. 2, D. Harley. 3, J. Brough. 4, Mrs. Stewart, Kelty, Blairadam. *hc*, J. W. Brockbank, Carnforth.

GAME BANTAMS.—*Black or Brown Red* —1, R. Brownlie. 2, D. Hardie. 3, G. Todd, Sunderland. 4, J. Rollinson, Lindley, Otley. *hc*, J. Archibald, Earlston; G. M'Millan, Jedburgh; A. Hutton, Earlston; *c*, Todd; J. Dick; F. L. Roy. *c*, Miss J. M. Frew, Kirkcaldy; W. Coutts, Selkirk. *Any other Variety.*—1, J. Brockbank. 2, R. Brownlie. 3, A. C. Lang, Selkirk. 4, Bellingham & Gill, W. Brockbank. 2, R. Brownlie. 3, A. C. Lang, Selkirk. 4, Bellingham & Gill, Burnley. *hc*, J. Archibald. *c*, Master A. Frew; W. Scott. *Cock.—Any Variety.* —1, R. Brownlie. 2, G. Todd. 4, D. Hardie. *hc*, Bellingham and Gill; A. Heatlie, Selkirk; F. L. Roy (2); W. Grice.

BANTAMS.—*Any Variety other than Game.*—1 and Special, S. S. Mossop, Long Sutton. 2 and 4, R. H. Ashton. 3, Miss R. G. Frew. *hc*, J. Archibald.

ANY OTHER VARIETY.—1 and Special, W. R. Park (Crève-Cœur). 3, J. Smith. Barndoor.—1 and 2, W. Reekie, Carterhaugh. 3, F. E. Schofield, Morpeth. 4, J. Riddle, Galashiells. *hc*, J. Bryden.

DUCKS.—*White Aylesbury.*—1, 3, and Special, D. Hardie. 2, H. Stephenson. 4, J. Fotheringham. *hc*, A. Pryde, Selkirk (2). *Rouen.*—1 and 4, D. Hardie. 2, H. Stephenson. 3, J. White.

SELLING CLASS.—*Cock and Hen, or Drake and Duck.*—1, R. H. Ashton (Golden-pencilled Hamburghs). 2, Mrs. Noble, Kelso (Blue Spanish). 3, D. Hardie (Dorkings). 4, R. Linton, Selkirk (Crève-Cœur). *hc*, T. W. Mitchell, Perth (Black Red Game); D. Annan (Dorking); F. L. Roy (Silver Bamburgh); W. Reekie (Dorkings); G. Dryden (Spanish). *c*, T. W. Mitchell (Black Red Game); W. Grice (Game).

COTTAGE CLASS.—1 and Special, J. Blyth, Dumfries. 2 and *hc*, W. Linton. 3, J. Beattie. 4, J. Nichol, Selkirk.

PIGEONS.

TUMBLERS.—1 and 3, G. J. Taylor, Huddersfield. 2, J. W. Watson, Bradford. *hc*, T. Imrie, Ayr. *hc*, A. Anderson, Edinburgh. *c*, M'Gill Skinner, Edinburgh; W. J. Brydone, Dundee.

CARRIERS.—1, T. Waddington. 2, W. Goddard, London. 3, M'Gill Skinner. *c*, Miss A. Anderson, Edinburgh.

FANTAILS.—1 and Special, A. Crosbie, Melrose. 2, J. W. Watson. 3, T. Imrie. *hc*, J. Gault, Kilbirnie; J. F. Loversidge, Newark; A. Crosbie.

POUTERS.—1, J. Hawley, Bradford. 2, 3, and Special, M'Gill Skinner. *hc*, T. Duncan, Dalkeith; J. Riddell (2).

JACOBINS.—1, T. Waddington. 2, J. Gault. 3, Master A. Frew. *hc*, J. G. Spence; A. Anderson.

NUNS.—1, T. Imrie. 2, W. Renshaw, Littleborough. 3, T. Waddington. *c*, W. J. Brydone.

OWLS.—1, W. Goddard. 2 and Special, G. J. Taylor. 3, A. Crosbie. *hc*, W. J. Brydone; M'Gill Skinner; T. Waddington; A. Fairbairn.

TURBITS.—1, J. Turnbull, Melrose. 2, W. Croft, Ripley. 3, J. Hawley, Bradford. *hc*, J. W. Watson; T. Waddington; A. C. Lang. *c*, W. Croft.

ANY OTHER VARIETY.—1, A. Crosbie, (Letz). 2, T. Waddington. 3, G. J. Taylor (Barbs) *hc*, J. W. Watson (Dragoons); W. J. Brydone (Magpies); W. Goddard (Ice and Frillbacks); A. Crosbie.

SELLING CLASS.—1, J. Gault. 2 and *c*, J. M'Gill, Elie (White and Blue Pouters). 3, W. Reddibosch (Dragoons). 4, A. Fairbairn (Tumblers). *hc*, W. J. Brydone (Owls); A. Crosbie; M'Gill Skinner (Pouters); Miss J. M. Frew (Fantails; A. Hutton.

JUDGE.—Mr. E. Hutton, Pudsey, Leeds.

SHERRINGTON BAR HIVE.

PERHAPS you will not object to publish a few words from me on the great advantage the bar hive has over the common hive, particularly if it will induce masters to procure a hive as a pattern to show to their labourers.

Cottagers, and those who keep bees to help out small means, naturally wish to obtain the largest possible amount of honey. When, in August, the supers have been taken, and the bees have done storing honey for their owner's profit, he naturally looks for a little extra profit by robbing the strong stock hive. How far easier it is to extract three or four combs from a bar hive than to cut them out from a common hive! In the one case, with the help of a few puffs of smoke, the four bars are removed in double the number of minutes, the bees are uninjured, and the remaining bars unshaken. In the other case it is a task requiring considerable nerve, the help of an assistant, and too often attended with more damage to the combs than profit to the owner. To a poor man the question, But the cheapest is often not really the cheapest in the end. With the common hive he would have generally to be content with what honey was in the supers; but with the bar hive the honey taken out would in the first year pay the additional expense of the hive, and for ever afterwards it would be a source of increased profit. A man has only to work this out by placing a common hive beside a bar hive to practically test the truth of what I say. There are many bar hives, and he can buy which he likes. I have planned the Sherrington bar hive cheap, for poor people. After seeing one, any man handy with fingers and saw could make all he would want for himself, during winter evenings, at the expense of the material, which could not cost more than 3*s*. I should think the expense of such work is the time occupied in the making. I should describe more fully the method of construction, had I felt myself competent to teach another to make by written description what I was unable to teach my own carpenter to make at first try from word of mouth.—T. W. GODDARD, *Sherrington.*

OUR LETTER BOX.

EGG-EATING FOWLS (——).—Your fowls eat their eggs because they are out of condition. Throw down loads of bricklayers' rubbish, and give them cooling green food. It is very difficult to cure. You can discourage the practice of eating eggs by putting very hard composition eggs in all their haunts. They get tired of trying to eat them.

CHINESE FOWLS (*G. C. A.*).—We are sorry we cannot help you to find the names of your fowls. We can only repeat that but for the top-knot, or rather lark-crest at the back of the cock's head, we should call them Black Cochins.

SHED FOR FOWLS (*E.*).—An open shed is preferable to a closed one as a run for fowls. If they are allowed entry into their house they will go there if the weather is too severe for them out of it, and it may safely be left to their discretion.

LAME TURKEY (*A. M. L.*).—He is probably a heavy bird, and in flying from his perch he has bruised the ball of his foot. This would present no visible appearance. The best treatment will be to confine him in a place well littered with straw. He will be long in recovering while he is at liberty. The weight of his body makes it difficult, as it falls on the tender spot each time he puts his foot to the ground.

HEN'S EGG-POUCH HARD (*W. T.*).—If the whole of the egg-pouch and its adjacent parts are hard to the touch, we advise you to kill the hen; the disease is an internal one and incurable. If it is merely cutaneous, soften with grease, wash with soap and water till the excrescences can be removed, then treat with healing ointment. The bird must be shut up till the cure is perfect, as nothing perpetuates and increases it so much as dirt.

PLUMAGE OF GOLDEN-SPANGLED HAMBURGHS (*A Beginner*).—The best Spangled Hamburghs we ever had showed white tips to their feathers on their bellies, and the cocks at times on their thighs. The latter is a far more serious defect than the former. We hope the exhibitors will forgive us for telling the truth, that it is a common thing for the white tips to be coloured. It would, of course, be far better if they did not exist. A white feather would be an abomination, but we can only repeat, the best and most successful strain we ever knew was subject to these spots. There was no breeding-in, nor other degeneracy.

CUCKOO DORKINGS (*H. A.*).—We are glad you have the Cuckoo Dorking, no better fowl lives, and they are at home in Surrey, which is their native air. Crève-Cœurs lay large eggs and lay well, but they are subject to periods of sickness from which they recover, but they are very miserable while such last. Houdans lay smaller eggs, but quite as many, and they are never sick nor sorry. We keep hundreds of Brahmas and do not find them large eaters, we consider them one of the most useful fowls we have. Spanish lay beautiful eggs for size, appearance, and flavour, but they are delicate chickens to rear, and they are scarecrows for a long time when moulting. Of the three breeds you mention, we should advise Houdans.

POULTRY RUN AND HOUSES (*V. G. C.*).—You can keep fowls by throwing the two runs into one, thus making it 24 feet by 8 feet. It is a pity the houses are not higher. One is sufficient for the number of fowls you can keep, as if you have no other space you will not rear chickens. If you have a kitchen garden in which you could put a hen under a rip with her chickens, the latter, of course, having the free run, then you may accomplish it. The spare house would do for a store, and for two or three sitting hens. You may in the space keep a cock and six hens. We should recommend you Brahmas if you mean to try chickens; Crève-Cœurs, Houdans, or Spanish if you do not. These last do not sit. You must bear in mind that in confined spaces you must seek to provide them artificially with that which they get in a state of nature, and which is essential to them—green food; the most useful is a daily large sod of growing grass cut with plenty of earth, dust, road grit in which to bask, and a heap of bricklayers' rubbish. You must be careful not to overfeed.

Game Cock (*C. J. S.*).—We are disposed to believe you have one between a Black Red and a Duckwing, or between a Black and a Duckwing. This latter cross is often tried where a tendency has been shown on the part of the Duckwing to throw white spots or grey feathers in the breast. The objectionable parts are bred out, and sometimes the first crosses are sold. It may be you have one of them.

Distinguishing the Cock from Hen Guinea Fowl (*J. K.*).—There is no certain test. The "comeback" is not one. The knob on the head of the cock is larger than that of the hen, and the gills are larger and drop lower. This cannot be depended upon, as those of an old hen sometimes become greatly developed. If it is intended to breed them, there is no certainty unless they are kept in pairs.

Two Cocks with Forty-four Hens (*W. H. P.*).—You want two more cocks now and for the next month, after that one more would be enough, and in the hot weather two would do. Go on sitting now, and a week after the introduction of fresh cocks we should do so confidently.

White Fowls (*Tamberlique*).—Your fowls are Silkies. If they are thorough-bred they should have dark flesh and faces. It may be they have a stain, but they are Silkies. The pure birds have a small top-knot. They are good layers and excellent sitters. They are much valued for sitting on Partridge and Pheasant eggs. Their chickens are the oddest and prettiest things imaginable, being like balls of white down.

Carolina Ducks (*Chee*).—Carolina Ducks are hardier than common wild Ducks. They feed freely on barley, Indian corn, and buckwheat. They do not require a large run. A few feet of grass extending from the water all round is the most they require. They should be pinioned, then they cannot fly. They are not wanderers. They breed freely in England. They will not make nests nor lay on the ground. They require small boxes shaped like dog-kennels, to be fastened on poles in the water, as in the accompanying figure. They will lay and hatch in them.

Pigeons "Going Light" (*R. H. Keable*).—This disease, otherwise called consumption, has been sadly prevalent during the present season, possibly from the great damp. We believe there is no remedy known. We invite the opinion and experience of the fancy on this subject.

Points in Nuns (*Jack*).—We believe the right number of dark feathers in each wing should be six, some say seven. Your birds having more on one wing than on the other would not win. Their being free from black feathers inside their hood is a great excellence, also their having no foul feathers in the body. Breed on until you breed birds with a level number of flight feathers, and you will have a good chance of a good prize. Jacobins should not have white thighs.

Canary and Goldfinch Cross (*S. J. N.*).—The age is immaterial, the main object being to get a hen from a strain which, from some inexplicable cause, has a tendency to throw birds more nearly allied to the Canary in plumage than to the Finch. By far the greater proportion of Goldfinch Mules are dark, self-coloured birds, not half so bright in plumage as the Finch himself; but where the Canary shows itself, either by giving brilliancy of colour to the naturally dark feathers of the self-coloured bird, or by causing it to break into a beautifully variegated specimen, the Mule becomes valuable according to the amount of brilliancy so bestowed, or the exactness of the markings; or if the Mule be perfectly clear, a cock of good colour, if it have a bright blaze on its face the breeder may write himself down among the lucky men of the nineteenth century. I can give no opinion as to the best age for pairing Canaries. Breeders never wait for breeding stock to reach any particular age. You cannot go far wrong by following Nature, but put your birds up in the spring, about the time when they are beginning to make love out of doors. Young birds of last season will breed this year, and breeders are only too glad to get nests from them while in the heyday of their strength. I have read somewhere, I do not know where, that certain disparities in the ages of the sexes have a tendency to produce more cocks or more hens in a nest, as the case may be, but I have never recorded any statistics, and seldom relate any experience but my own.—W. A. Blakston.

Canaries Unwell (*H. C. W.*).—The cage of the Canary No. 1 is infested with a very familiar friend (?), of the Canary breeder, a parasite which —— I was going to attempt a learned disquisition on the nuisance, but the truth is, I know nothing of the natural history and private life of these pests. I only know them by sight, and when they intrude am always desirous to cut the connection. I said parasites, and that, I apprehend, they must be. *Ex nihil nihil fit*, and I do not see how wood, wire, paint, and varnish can by any fortuitous combination produce animal life. They must emanate from the bird; but what they are, what they turn to (if they turn to anything at all), or whither they go, is more than I can say. When I get a visitation they usually go into boiling water. One year I put away some felt nests without examining them—very careless, I admit, but at the close of a busy season one is glad to get the rubbish out of the way and clear up for moulting—and I found them some time after completely perforated, tunnelled by some long maggotty-looking worms, which I fancied were one form of the red insect, mite, spider, bug, or by whatever name it may be called. They congregate in masses round the inside of nests, in cracks, between cages in contact, in any snug corner, and there they multiply and increase in a wonderful way. They do not show themselves much till nightfall, when they emerge from their dens and feast on the blood of the Canary, and if a cage infested with them be examined by candlelight, they may be seen running over the feathers of the birds by scores, with a nimbleness and activity quite foreign to them in the daytime. However, your cage seems to be infested with them, and the best thing will be to get rid of them, and study their natural history afterwards. This will best be done by immersing it in boiling water, and afterwards varnishing it, taking care to rub the varnish well into the cracks and joints. Is No. 2 in a cage by itself? Are the tips of the young feathers injured by any other bird pecking it, or by its knocking itself about? From the length of time it has been in its present state, I apprehend it has been making a late moult. But the half-closed eyes and general debility point to a state of things which can only end one way unless a change for the better occur. Cover it up entirely with a piece of green baize or other warm stuff, and place it in an extra warm place. Take away its water for half a day and replace the vessel with the surface well floated with castor oil. Feed on Canary seed only.—W. A. Blakston.

Canary's Eye Blind (*Laice*).—If the complaint is of six months' standing, it says little for any prospect of recovery. It must be the result of old age, or causes other than temporary inflammation from cold.—W. A. Blakston.

Husk in Canary (*D. H.*).—Give bread and milk, and hang in a warm place away from draughts.—W. A. Blakston.

Nutt's Hive, &c. (*Subscriber's Sister*).—Write to Messrs. Neighbour, 127, High Holborn. They can inform you better than we can.

Unhealthy Hive (*Alpha*).—We should imagine your bees have been suffering from dysentery. We shall be better able to advise you if you will favour us with replies to the following questions. 1, Was the hive very light when you united the bees? 2, How much food did you give? 3, Do the bees fly out at all on warm days? 4, What appearance and substance do the yellow combs (as you express it) present?

Various (*Stultus*).—The Mountain Finch, Bramble Finch, or Brambling, is the Fringilla montifringilla of ornithologists. You will find it described in Macgillivray's "British Birds." Oatmeal and ground oats are not the same. We do not know what you mean by "an ordinary out-door grape," nor do you say where your vine is growing.

Melilotus leucantha (*H. B. S.*).—You must raise plants from seed. You can obtain it of any agricultural seedsman. All the clovers and melilots are good bee-flowers.

Fixtures (*W. B. B.*).—You have no legal right to remove the grate and copper without your landlord's consent.

METEOROLOGICAL OBSERVATIONS,

Camden Square, London.

Lat. 51° 32′ 40″ N.; Long. 0 8′ 0″ W.; Altitude 111 feet.

Date.	A.M.					In the Day.				
1872. Jan.	Barometer at 32° and Sea Level.	Hygrometer. Dry.	Hygrometer. Wet.	Direction of Wind.	Temp. of Soil at 1 ft.	Shade Temperature. Max.	Shade Temperature. Min.	Radiation Temperature. In sun.	Radiation Temperature. On grass	Rain.
	Inches	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 17	29.642	43 5	42.5	S.E.	38.4	49.0	31.5	48.2	29 9	0.380
Th. 18	29.075	41 7	39 4	W.S W.	40.9	46.4	41.2	71.4	37.2	—
Fri. 19	29.417	40.2	39 2	S.E.	40.1	44.8	36.2	50.6	30.5	0.110
Sat. 20	29.565	39 4	38.7	N.	39.5	42.0	37.5	48.2	34 8	0.020
Sun. 21	29.716	37.4	37.2	E.	39.5	42 1	32.1	42 8	29.9	0.010
Mo. 22	29.579	38.8	38 4	S.E.	39 9	44.4	37.0	45.0	32 2	0 192
Tu. 23	28.971	45 6	44 0	S.E.	40.4	49.1	38.5	71.9	38.0	0.450
Means	29.424	40.9	39.9		39 7	45 4	36 3	53.9	33.2	1.162

REMARKS.

17th.—Very rainy morning, and so continued all day, the wind getting more and more boisterous till night, when it blew a gale.

18th.—Fine morning, rain about noon, and in the afternoon, but fine between, and lovely night.

19th.—Beautiful bright sunny morning, dull afternoon, fine evening with lunar halo at 5.30 P.M., but dull night.

20th.—Wet in morning and showery during the day, fine evening and very fine night.

21st.—Slight mist early, then dry, rain at 0.40 P.M., fine afterwards, but damp and disagreeable.

22nd.—Stormy, dark, and damp all day.

23rd.—Wet and windy morning, but fine from noon, all the afternoon and evening. Lunar halo at 9.30 P.M., and rain at 10.30 P.M. Barometer remarkably low at 1 P.M., reading corrected and reduced to sea level only 28.832.

The week has been as damp and cloudy as most of the last month, and the barometer very low, below 29 inches twice—viz., on the 18th at 2 A.M., and 23rd at 1 P.M.

24th.—Shortly before midnight the barometer again turned to fall; and at 4.47 A.M. on the 24th it was, corrected and reduced to sea level, only 28.332 inches being lower than for the last 25 years, and with, I believe, one exception the lowest for half a century.—G. J. Symons.

COVENT GARDEN MARKET.—January 24.

We have still an excess in the supply of rough out-door produce, and reduced prices have been the consequence. Forced vegetables are quite sufficient for the trade. Cornish Broccoli is very good. Consignments to us from Paris chiefly consist of salading; the general trade with the Continent has been large this week.

FRUIT.

	s.	d.		s.	d.		s.	d.		s.	d.
Apples .... ½ sieve	2	0	to	4	0	Mulberries .... lb.	0	0	to	0	0
Chestnuts .... bushel	10	0		20	0	Nectarines .... doz.	0	0		0	0
Filberts .... lb.	0	6		1	0	Oranges .... ⅌100	4	0		10	0
Cobs .... lb.	0	6		1	0	Pears, kitchen .... doz.	2	0		4	0
Grapes, Hothouse .... lb.	4	0		8	0	dessert .... doz.	3	0		8	0
Gooseberries .... quart	0	0		0	0	Pine Apples .... lb.	4	0		7	0
Lemons .... ⅌100	7	0		10	0	Walnuts .... bushel	10	0		25	0
Melons .... each	2	0		3	0	ditto .... ⅌100	1	0		2	0

VEGETABLES.

	s.	d.		s.	d.		s.	d.		s.	d.
Artichokes .... doz.	4	0	to	6	0	Leeks .... bunch	0	3	to	0	0
Asparagus .... ⅌100	5	0		8	0	Lettuce .... doz.	1	0		2	0
Beans, Kidney .... per 100	3	0		4	0	Mushrooms .... pottle	1	0		2	0
Broad .... bushel	0	0		0	0	Mustard & Cress .... punnet	0	2		0	9
Beet, Red .... doz.	1	0		3	0	Onions .... bushel	2	0		4	0
Broccoli .... bundle	0	9		1	6	pickling .... quart	0	6		0	8
Brussels Sprouts .... ½ sieve	1	6		3	0	Parsley per doz. bunches	3	0		4	0
Cabbage .... doz.	1	0		1	6	Parsnips .... doz.	0	9		1	0
Capsicums .... ⅌100	0	0		0	0	Peas .... quart	0	0		0	0
Carrots .... bunch	0	6		0	0	Potatoes .... bushel	2	0		3	6
Cauliflower .... doz.	2	0		5	0	Kidney .... do.	3	0		5	0
Celery .... bundle	1	6		2	0	Radishes .... doz. bunches	0	6		1	0
Coleworts .... doz. bunches	2	0		4	0	Rhubarb .... bundle	1	0		1	6
Cucumbers .... each	1	0		2	0	Savoys .... doz	0	9		1	6
pickling .... doz.	0	0		0	0	Sea-kale .... basket	1	0		2	0
Endive .... doz.	2	0		0	0	Shallots .... lb.	0	4		0	6
Fennel .... bunch	0	3		0	0	Spinach .... bushel	3	0		4	0
Garlic .... lb.	0	3		0	0	Tomatoes .... doz.	0	0		0	0
Herbs .... bunch	0	3		0	0	Turnips .... bunch	0	3		0	6
Horseradish .... bundle	3	0		4	0	Vegetable Marrows .... doz.	0	0		0	0

WEEKLY CALENDAR.

Day of Month	Day of Week.	FEBRUARY 1—7, 1872.	Average Temperature near London. Day.	Night.	Mean.	Rain in 48 years. Days.	Sun Rises. m.	h.	Sun Sets. m.	h.	Moon Rises. m.	h.	Moon Sets. m.	h.	Moon's Age. Days.	Clock before Sun. m.	s.	Day of Year.
1	Th	Partridge and Pheasant Shooting ends.	44.4	32.0	38.2	14	42	af 7	46	af 4	morn.		30	10	22	13	48	32
2	F	Candlemas Day.	44.6	31.5	38.0	21	41	7	48	4	37	af 0	50	10	(	13	56	33
3	S		45.0	30.7	37.9	20	39	7	50	4	59	1	13	11	24	14	3	34
4	Sun	Sexagesima.	45.0	32.8	38.9	20	37	7	52	4	20	3	43	11	25	14	9	35
5	M		43.7	34.5	39.6	20	35	7	54	4	41	4	after.		26	14	14	36
6	Tu		46.5	32.6	39.6	21	34	7	55	4	53	5	24	1	27	14	19	37
7	W		46.9	33.0	39.9	24	32	7	57	4	54	6	37	2	28	14	23	38

From observations taken near London during forty-three years, the average day temperature of the week is 45.4°; and its night temperature 32.8°. The greatest heat was 57°, on the 3rd, 1850; and the lowest cold 10°, on the 5th, 1830. The greatest fall of rain was 0.67 inch.

WHY DO GRAPES FAIL?

WE agree with the epigrammatic remark of Mr. Pearson (page 17) that "a man may miss his way in the cultivation of a new kind of fruit without being exactly a fool." There are circumstances connected with the cultivation of the Vine which even the best gardeners do not think of or cannot control, and therefore it becomes everyone to speak with some degree of diffidence and modesty in condemning new kinds of Grapes till they have had a fair trial, and the greatest skill has been exhansted npon them unsuccessfully.

To the uninitiated it seems very bewildering that at one place Mrs. Pince's Muscat, for instance, is grown in the greatest perfection, while at another place only a few miles distant it proves a complete failure, after having tested the best exertions of its owner in its favour; and such is the case. Instances of this not only in regard to this Grape but to many others may be furnished; but it is rash in those who fail, to condemn in unmeasured terms, as has been too frequently the case lately, those varieties which, from whatever cause, they cannot grow.

It would be well worth while, and much advantage might result from the inquiry, to ascertain where certain kinds of Grapes succeed and where they fail; then to set an investigation on foot as to the soils of the districts where they are grown. A great deal has been said about the formation of Vine borders; much has been written about them, and some sharp controversies have taken place on the subject. In almost all, if not all, the instructions as to how a Vine border is to be made, we are told to "take the top spit of an old pasture." Now, in this top spit of an old pasture resides many a success and many a failure. Have those who so unreservedly advise taking the top spit of an old pasture ever reflected what that really means, and to what results their advice must unfailingly lead? Let us take a few spits from the surface of old pastures—one from Hampstead Heath, and another from Bagshot; one at Oxford, another at Cambridge; from the Weald of Sussex, and from the Forest of Exmoor; from a valley in the Cheviots, and from the banks of the Tyne; from Ipswich, from Matlock, and from Aberystwith. Analyse these separately, and we shall find in them substances as various in their mechanical and chemical composition as it is possible for them to be.

Now, while there are varieties of the Vine that will grow more or less successfully in all these kinds of soil, there are others much more capricious, and which require to be studied in this particular if their greatest merits are to be brought out. The *vignerons* of Europe have long ago discovered that to get the greatest good from certain varieties they must be grown on certain soils. The plants that produce the finest growths of Champagne are not grown on the rocky steeps and valley slopes of the Rhine; and those which supply the vaunted Johannisbergs and Rüdesheimers are very different from those yielding the Montrachet of Burgundy and the Yquene of the Gironde; while the Carmenet, the Malbec, and the Verdot, to which we are indebted for the famed Margaux, La Rose, and Lafitte, are entirely ignored in Burgundy, where they would fail to yield the equally famed Romanée Conti, Chambertin, and Clos Vaugeot furnished by the little Noirien and Pineau. It is, therefore, evident that to insure success in the cultivation of the Vine, our growers must give more heed to the composition of the soils of which their borders are made; and also to learn the kind of soil in which the different varieties are found to succeed best. One of the Grapes, respecting which regrets are frequent because it is so difficult to grow, is the Muscat Hamburgh, one of the most excellent varieties known in regard of flavour. This has the reputation of being in some places a bad grower, in others a bad setter, and not unfrequently bad to colour. A few years ago we sent it with others, then new here, to the south of France, where it is now being largely grown in vineyards on the schistoze spurs of the Pyrenees, and where neither in point of growth, fertility, colour, nor flavour does it leave anything to be desired. There, then, is a proof that the Muscat Hamburgh delights in a soil formed of the rocks of the primary formation. No doubt many other Grapes require special soils and treatment, and it is to attain a knowledge of these that gardeners ought to direct their attention.

We have been led to make these observations in consequence of a tendency exhibited by some writers lately to run down and disparage some of the new Grapes recently introduced, merely because of their own or of others' failures to grow them. Not content with depreciating the Grapes, they even point innendoes at the raisers and introducers of them; innendoes that cause honourable traders to shrink and reproach themselves that they have been the means of disseminating such worthless commodities. Nothing can be more unfair and unguarded. Such conduct acts as a check to enterprise, and a discouragement to experiment. It is hasty, thoughtless, and mischievous. If growers would content themselves with simply giving their experience, and stating all the circumstances under which the fruit was produced, others might learn what to do and what to avoid; but an unqualified condemnation merely on the ground of individual failure, though it may not bring the writer under the charge of what Mr. Pearson calls being "a fool," lays him open to be considered extremely foolish.

AMARYLLIS AND HIPPEASTRUM CULTURE.

The plants to which I would now call the attention of amateurs are usually to be found in gardens under the name of Amaryllis, although it would, perhaps, be more correct to place them in the genus Hippeastrum. The true members of the former genus are mostly natives of the Cape of Good Hope, and have but few representatives in the gardens of Europe, whilst the latter, although nearly allied and almost similar in appearance, are mostly found in tropical America and the various West Indian islands, and, together with the hybrid forms to which they

have given rise, are happily more frequently to be met with in our plant stoves, and upon our exhibition tables, but, certainly, much less frequently than they deserve to be. I think, therefore, it is quite time the subject should be agitated through the pages of the Journal, in order to arouse the latent fire of those who were once admirers of these plants, but who may have been seduced from their old love by more popular modern beauties, also to endeavour to enlist young rising amateurs in the ranks of the Hippeastrum-growers.

If any of my readers think it an innovation on my part, or refuse to relinquish the name Amaryllis from what I have said, I no more wish to ask them to do so than I have means to enforce it; but I do say, Grow these plants extensively, call them whatever you please, but cultivate them largely, and hybridise them also, so that some of your fellow labourers may be gladdened with the sight of new forms.

Those amateurs who delight in grand showy flowers should lose no time in adding some of these plants to their collections, for they are most accommodating in their nature, and are very easily managed. They are equally suitable for growing and flowering in the stove, greenhouse, or fernery; but those who have the advantage of a stove temperature and a moderate quantity of bulbs may, with a little management in arranging the succession, enjoy the beauties of these gorgeous flowers every month, if not every week, in the year, thus giving a more brilliant return for the little attention bestowed than some plants do for a whole season's unremitting care. I do not wish, be it understood, to advocate the culture of those plants only which require little attention; for if I know anything of the genuine love of plants after twenty-six years' courtship, I must say I have yearned for the health of, and fondled most, the very plants that I have found most difficult to manage. With amateurs, however, in many instances, the case must be very different; for if it be only possible to devote to their plants a certain amount of time daily, then it behoves them, if success is looked for, to cultivate those plants only which can accommodate themselves to the limited time at their disposal.

These plants, I am sorry to say, are treated in what appears to me a very irrational manner, for in a state of nature the bulbs grow below the surface of the soil, but under cultivation they are placed upon the top, or at most only partially covered, but the reason for such a change I never heard satisfactorily explained. That they will grow with us and flourish when treated in a natural manner is an undeniable fact, and certainly they then present a more elegant appearance than they otherwise do. Again, when the growing season is past, the usual practice is to turn the pots upon their sides, and completely dry up the roots; nay, some even go to a greater extreme and turn the bulbs out of the pots, placing them upon dry shelves. This I cannot help thinking most unnatural treatment, and one of the reasons why we do not see much improvement from year to year in these plants. Friends of mine, who have collected them, have assured me that in the dry season they have dug out the bulbs with their roots deep down amongst the moist soil, and quite active. That under similar treatment Amaryllids thrive with us I may cite my old favourite A. Belladonna, which, when planted in the open ground, especially under a wall, grows and flowers most luxuriantly, each year only serving to increase its vigour and the number of its flower-scapes; yet plants exactly similar, but not rejoicing in such a hardy constitution, have the majority of their roots dried up every season, and, consequently, are prevented from displaying themselves in their best aspect.

The method I adopt in the cultivation of these bulbs, and which has led to very successful results, is to pot them below the surface of the soil, using for this purpose a compost consisting of two parts good turfy loam, one part leaf mould, and one part thoroughly decomposed manure, adding to the whole sufficient sand to make it feel gritty when taken in the hand. The most suitable time for repotting I consider to be immediately after the flowers fade. During the growing season they enjoy a liberal supply of both heat and moisture, and therefore the drainage must be perfect. Growth completed, and the leaves showing signs of decay, water should be gradually withheld; and when the plants have become dry, inure them by degrees to a lower temperature, until ultimately they may be placed in a cold pit. While there no water should be given, but a little water may occasionally be poured into the pit between the pots, by which means I have generally preserved most of the roots, so that when the plants begin to push up their flowers there are active mouths all ready to supply nutriment to the awakened plant.

In drawing my remarks to a close, I will add a few names of kinds I have grown, with the colours of their flowers, to assist some of my readers in making a selection. At the same time it must be understood there exist an immense number of hybrid forms, although they are somewhat difficult to procure. This drawback to their culture is, however, fast fading away, as several of our leading London nurserymen are devoting their energies both to the introduction of species and of good hybrid kinds.

La Beauté.—A beautiful white flower, the segments striped with crimson.

Gravianum.—Ground colour orange red, base of flowers light, segments striped with white.

Sir John Franklin.—Greenish yellow, with deep crimson edges.

International.—Segments very long; flowers light, striped with rosy pink.

Lion des Combats.—Ground colour white, segments flaked and striped with crimson. A superb flower.

Pardinum.—This is a very beautiful species from Peru. Flowers large, ground colour creamy yellow, dotted with reddish crimson.

Beauté sans Pareille.—Ground colour dark crimson, base greenish yellow, segments striped with white.

Princess Alexandra.—A superb, large, crimson flower, base green, segments striped with reddish purple.

Ackermannii pulcherrimum.—Ground colour rich deep crimson, beautifully veined with green.

Albertii flore-pleno.—Flowers bright orange, double. Introduced by an intimate friend of mine from Cuba.

William Pitt.—A superb variety, of good form; white, segments striped with rich vermilion.

Aurora.—Bright orange, segments striped with white. Very handsome.

Cleopatra.—A superb flower, large, and of good form; orange scarlet, streaked with crimson.

Calyptratum.—Flowers orange red, with light base.

Eldorado.—A fine, large, white flower, the segments striped with cerise, and shaded with purple.

Pyrrochroum.—A newly introduced species from Brazil. Flowers very fine, reddish scarlet in colour, base greenish yellow.

Striatum superbum.—Ground colour deep red, segments streaked with white and green.

Beauté sans Rival.—A superb large flower, ground colour rich orange, streaked and mottled with white.

—Experto Crede.

GRAFTING.

In the course of a few weeks the time will have arrived for grafting operations to be commenced. With us in this country the forms of the process of grafting are few and simple. We have first the ordinary whip-grafting, cleft-grafting, inarching, and budding. These are what are generally practised among us, with here and there a fanciful form introduced by some ingenious operator. The French are more elaborate and diffusive in this operation than we are. Whole treatises have been written on the subject, forming good-sized volumes, and among these the most recent are those by Abbé Dupuy and M. Charles Baltet. We had occasion not long ago to notice this work of M. Baltet, which is at once concise, full, and practical. In it we have every conceivable variety of the graft fully explained, and as M. Baltet had the kindness to furnish us with illustrations of the most important forms of grafting, we have much pleasure in laying them before our readers, with the descriptions taken from the original work.

Inarching (*Greffage par approche*) is the oldest of all. From time immemorial Nature has furnished examples of it in the forests and hedges, where it is met with in trees united by their roots or branches through being long in close contact and by continued friction. Inarching consists, then, in uniting two trees by their stems or their branches. In some cases it is a branch of a tree that will be grafted on to the tree itself. The time of inarching begins with the movement of the sap and finishes with it—from March to September. The stock and the graft may be either in the woody or herbaceous state; in whatever condition, the operation is the same. In inarching it is not necessary to remove the leaves from the graft, as in other systems, because the graft remains in conjunction with the parent tree when it is joined to the stock. A slice of the wood and bark is made on the stock and on the graft, the same in both, so that the two parts will fit and unite intimately. To facilitate the union a ligature and grafting-wax are applied; a stake is added if two distinct trees are to be dealt with.

After a year or less of growth, when the bond is complete, the graft is separated.

[There are five forms of inarching treated on by M. Baltet, some of which differ so slightly from each other that we consider it not worth while to illustrate the whole. The first is what he calls "*en placage*," and consists in merely removing a slice of bark and wood from the stock and graft respectively, and binding the naked surfaces close together by a ligature of bast, cotton, or wool, and protecting it either with grafting clay or wax. The second is what he calls "*en incrustation*." Two sloping cuts are made on the graft, so as to form an angle, and a corresponding angular cut is made into the stock to receive the scion, which, when bound together as described above, unites with the stock. The three following are so distinct we shall treat them separately.]

Inarching, the English way (*Greffe par approche à l'Anglaise*). —*Fig.* 1. Over and above the ligature the graft can be made still safer by making on the two naked surfaces where the bark has been removed a set of corresponding tongues (A and B),

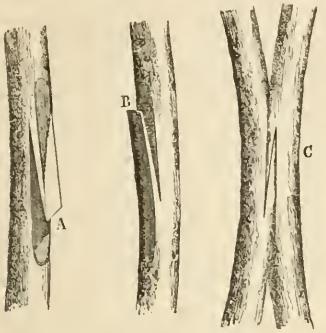


Fig. 1.

which are united as in c. If a slow union is dreaded the stock is headed-down at the time of inarching, and the graft applied on the top.

Buttress-inarching (*Greffage par approche en arc-boutant*). —Employed more especially for the restoration of plants, this mode of inarching is equally useful for propagation, and is practised from April till July. The chief difference between this and the preceding consists in heading-down the graft, tree, or branch, and introducing it under the bark of the stock. The graft being topped and cut slantingly, thin at the tip under the shoot or terminal branch, it is inoculated on to the stock by means of an incision—thus, ⊥, made in the bark. The position of the incision is regulated according to the length of the graft, but about three-quarters of an inch lower, in such a manner that, to introduce the graft it is slightly bent from above downwards to give it a returning motion; then slide it under the bark of the incision as if it should act like a buttress. The two principal modes of buttress-inarching are only applicable during spring and summer.

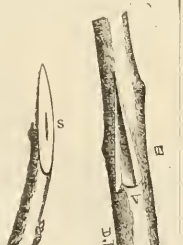


Fig. 2.

Buttress-inarching with a Bud (*Greffe en arc-boutant avec œil*).—*Fig.* 2. The bud being chosen as a terminal shoot, we cut the graft (s) in a flat slanting direction, and introduce it under the bark of the stock (T), where it has been raised (V).

Buttress-inarching with a Branch (*Greffe en arc-boutant avec rameau*).—*Fig.* 3. The graft (L) bearing an adventitious shoot will be shortened about three-quarters of an inch by a flat sloping cut (S) on the opposite side from the shoot; care must be taken to reduce the thickness of the slant, except at the point, and not to remove the leaves neither of the branch nor the graft. The stock is a distinct tree (O), bearing the graft-branch. The incision (P) is made in such a way as that the graft will be inserted as represented at R. The shoot (M) is preserved entire, or shortened to two eyes, according to its

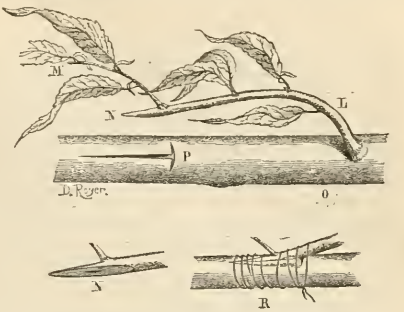


Fig. 3.

length. It is called an adventitious shoot if it is produced in the current year on an herbaceous graft-branch; then the grafting should have been done in summer. It is called young wood in the spring on the woody graft-branch, or the graft-branch of the preceding year. In that case the grafting should have been performed from April to June.

[Buttress-inarching is a safe and excellent mode of renewing defects in trained trees where the symmetry of the tree is an object of consideration with the cultivator. It not unfrequently happens that a tree of great beauty of form suffers by the loss of a branch either by the vicissitudes of the season or by accident; in such cases it is most desirable that some remedy should be available, and there is no better method of repairing such injuries than by this method of buttress-inarching.]—Baltet, *L'Art de Greffer*.

SUCCESSIONS OF VEGETABLES.—No. 6.

CAULIFLOWERS.

Early London.—A good early kind, with fine medium-sized heads, not very close, but white and good. Sow August 20th, February 15th, and March 6th in gentle heat; on March 15th under a south wall; April 6th and 26th, and May 20th.

Early Dwarf Mammoth, or Frogmore Forcing.—Sow August 20th; on February 15th and March 15th in gentle heat; on March 20th under a south wall; April 6th and 26th, and May 20th.

Early Dwarf Erfurt.—Plant dwarf and compact; heads large, white, compact, and excellent. Sow August 20th; March 15th in gentle heat; March 20th on a south border; April 6th and 26th, and May 20th.

Walcheren.—Heads large, not very close, but white and good. Sow August 20th; March 15th in gentle heat; April 6th and 26th, and May 20th.

Stadtholder.—Heads large, compact, and solid. Sow August 20th, April 6th and 26th, and May 20th.

Asiatic.—Very large close heads. Sow March 20th under a south wall; April 6th and 26th, and May 20th.

Lenormand's.—Large close heads. Sow March 20th under a south wall; April 6th and 26th, and May 20th.

Veitch's Autumn Giant.—Heads large, compact, firm, and white; distinct from all others, and a valuable acquisition. Sow August 20th, April 6th and 26th, and May 20th.

Here we have eight sorts, and all good. Four will be sufficient for most gardens, and those which I consider best are Early London, Walcheren, Stadtholder, and Veitch's Autumn Giant, and Early Dwarf Mammoth (Frogmore Forcing), for growing in pots in cool houses, also under hand-glasses. The most useful of all is Walcheren; by sowing it on August 20th, September 7th, February 15th, March 15th, in gentle heat; on March 20th under a south wall; and on April 6th, May 20th, and June 7th it affords a supply of good heads from the close of May to the January following. Indeed I have now in a south border plants each with a head the size of the closed hand, and these, if taken up, laid in a cool place, and protected from frost, keep good a month or six weeks. I am also persuaded a like result would be attained by frequent successional sowings of Veitch's Autumn Giant, a much superior variety; but I have a

liking for different sorts, and do not wish to confine myself to one, for though I have known a gardener who could not be induced to grow more than the never-failing Walcheren, I should be unwilling to resort to the retarding of the plants, &c., needed to keep up a succession between the August-sown and the spring-sown plants.

Now, at the August 20th sowing I consider it well to sow Early Dwarf Mammoth, or Frogmore Forcing, and Early London; the former to be potted early in October, and grown in a cool house with plenty of air and light. Place the plants first of all in 3-inch pots, and when these are full of roots, or early in January, shift into 6 or 7-inch pots. In these they may remain until March, or if the weather is severe until early in April, when they may be turned out in pits or under hand-glasses, and, if they could have the benefit of a gentle bottom heat, say 2 feet of tree leaves and dung, would produce fine heads in May or early in June, according to the weather, succeeding the late Broccoli. Instead of adopting this method, the plants early in October may be pricked off about 3 inches apart in frames or under hand-glasses, and be planted out on a warm exposure in March or April. Whether in frames or under hand-glasses, the plants cannot have too much air, but must be protected from frost, keeping them close and in the dark while they are frozen. In spring those under hand-glasses may be thinned-out to three or four, and the plants left should be earthed, have the lights or glasses raised on bricks as they grow, and be watered in dry weather. They will be the first to come in at the beginning of June, and will be followed by those planted out from the frames or hand-glasses.

At the August sowing sow also Walcheren and Veitch's Autumn Giant, so as to make sure of there being no break in the succession. They should be pricked-off in frames, and planted out in spring. These will come in at the end of June or early part in July, and with the Autumn Giant will keep up a supply until those sown in heat come in.

The plants raised in heat in spring should have a mild hot-bed, be only a few inches from the glass, and be kept cool at their tops. If at any great distance from the glass and in any great heat, they will all go off at the stem or "blackleg," and they are then useless. Prick them off when they show a pair of rough leaves, either in the same bed or in one equally cold, and keep them only gently growing. They should be planted out when large enough. The heads will come into use about the middle of July, and as we sow early and later kinds a continuous succession will be maintained.

The plants of the spring and early summer sowings should be pricked-off about 2 inches apart when large enough to handle, and be planted out when about 6 inches high, or with half a dozen leaves. It is a good plan to take them up and plant with a trowel, instead of pulling them up and planting with a dibble, as then they do not experience so great a check, and are not so liable to button. In dry weather they should have an abundance of water, and liquid manure should be poured between the rows once or twice a-week.

Of all the crops that from the May sowing is the most important, as it is that which affords the autumn supply. They should be planted out by the middle of July, and I put in a good breadth early in August to make sure of a late supply until the winter Broccoli comes in. From the first planting the heads are fit for use early in October, and to insure a lengthened supply a number of plants with close heads about half developed should be taken up, laid in earth in a sheltered place, and be covered with straw mats or other covering in severe weather. From the last planting we obtain heads in November, and later in mild weather, and the plants taken up and laid-in afford a supply until January, or afterwards if protected from frost. An open shed is an excellent place, but they should be covered with straw in severe weather.

The Cauliflower season may be said to commence early in June, and in the south in May, continuing until November or frost; and by taking up, laying-in, and affording protection it may be prolonged until January.

For small gardens, Early Dwarf Mammoth and Dwarf Erfurt are recommended, with Veitch's Autumn Giant for late use. It deserves a place in all gardens.

One ounce of seed of four of the kinds named is sufficient for a garden of two acres, with a packet of Autumn Giant additional; 2 ozs. for a garden of one acre, and so on in proportion downwards.

BROCCOLI.

Snow's Superb Winter White.—This is a very good sort. Sow at the end of March or early in April, and again on May 10th. The heads from the first sowing will come into use in December, and continue so until February; and the second sowing will be ready in January or February if the weather be mild.

*Backhouse's Winter White Protecting.—Heads large, white, and compact. It is earlier, hardier, and more self-protecting than Snow's, and is a most desirable kind. Sow it in the second or third week of March for heading in December, and again in the second week of April for heading in January and successionally.

Malta.—A dwarf-growing kind; heads medium-sized, compact, and white. Sow April 10th. It is in use early in March.

*Veitch's Spring White. — Dwarf and compact-growing, heads medium-sized, close, and white. Sow April 10th. It heads early in March.

Dilcock's Bride.—Of dwarf, compact growth; heads large, compact, and white. Sow April 10th. It heads at the end of March or beginning of April.

*Elletson's Surprise.—Of dwarf, compact growth, with large, close heads. Sow April 10th. It is in use in April and May.

Dalmeny Park May.—Dwarf, hardy; heads, large, close, and white. Sow April 10th. It comes in during May.

*Lauder's Superb Late Goschen.—Habit dwarf; heads large, close, and excellent. Sow April 10th. It comes into use about the middle of May, and heads until June.

I have omitted the Cape, Purple, &c., as I have found that with a supply of Cauliflowers in summer and autumn, and good close heads of Broccoli in winter, spring, and early in summer, they are not cared for, and, indeed, they only take up the room wanted for subjects in greater demand.

Half an ounce of each of the four kinds marked with an asterisk (*) are sufficient for a garden of two acres, and half that quantity for a garden of one acre; but to insure a supply it is necessary to grow the four kinds.

The soil for Broccolis should be in good heart, the situation open, and the distance between the plants ought not to be less than 2 feet, more if the land has been enriched with fresh dung. They should be planted out early in July, and, with the exception of the early-heading kinds, laid in or down at the end of October or beginning of November.—G. Abbey.

GLEICHENIA RUPESTRIS CULTURE.

A leisure half-hour, what shall I write about? I have so many favourites that I scarcely know which to select—I will decide to write a few lines on the successful growth of that beautiful Fern Gleichenia rupestris.

In taking a walk round the fernery just now my eyes lighted on my favourite, and the thought struck me that no lover of plants could look upon it without admiring it—not that it is a gigantic plant (it is 4 feet in diameter, by 2 feet high), but because of its perfect health and its exquisite foliage and growth. It forms a mass of beautiful light green fronds, hanging gracefully down over the pot in which it is growing.

The thought struck me when looking at and admiring this beautiful plant, How is it that we so rarely see Gleichenia rupestris exhibited by amateurs? Is it because of its costliness? No. What, then? Because of unsuccessful treatment and failure in its culture. For my own part I have never had the least difficulty in growing this beautiful Fern, as I have had before several plants as good as that referred to, and much larger specimens of some of the other species. Shall I say it is difficult to grow? No, quite the reverse; it grows, in common phrase, like a weed, and yet we do not see it generally exhibited or grown. I have no hesitation in saying that it is more through ignorance of its proper treatment than owing to the expense of the plant that we do not frequently see it grown and exhibited. I will state as plainly as I can my mode of treatment, and if it is instrumental in helping to success any fellow plant-lover who may have failed in growing this beautiful Fern, I shall feel myself amply repaid for my leisure half-hour's writing.

We will suppose that we have just purchased a healthy young plant from the nursery; to shift it at once would perhaps be hardly advisable, at least I should prefer to let it alone for a week or two after having it home, until it showed signs of fresh growth. Then prepare the soil; I have always found the following the best: two-thirds good fibrous peat, and one-third good, turfy, half rotted yellow loam, with a free admixture of silver sand, and small lumps of charcoal the size of a walnut, mixed well together. Prepare the pot by filling one-third of its depth with crocks, putting the larger crocks underneath, and a good quantity of small ones on the top; put over these a layer of sphagnum moss, or if this is not at hand a layer of the roughest of the soil; fill up with the compost, and place

the plant so that the crown or rhizomes may be about half an inch below the rim of the pot, fill in round them, and give the pot two or three smart taps on the potting-board or floor; afterwards press the soil firmly all over. Do not bury the rhizomes, but rather let them be close on the top of the soil. Let the surface be finished off rather smoothly, and the potting is done. I generally allow a liberal shift, so that the rhizomes may have room to run. The potting completed, place the plant in an airy part of an intermediate house; do not allow the sun to shine upon it, but let it have as much light as you can. Water it for the first three or four times with a fine-rosed watering pot, so that the soil may settle about the roots. All is now complete, and with a little care in its treatment you will soon have a beautiful plant.

I may add that I do not think any of the Gleichenias require half so much heat as many are accustomed to give them; in fact, some of them will thrive in a cool house, and be far more satisfactory than in too much heat.—T. B.

THE BENEDICTINE, EDGARLEY, AND ESPERINE PEARS.

I was very much surprised to see my name mentioned in a footnote in your Journal, respecting the Glastonbury Pear. I beg to say Mr. Sampson's statement with regard to my having raised it is incorrect. I certainly gave him the grafts and some of the fruit, at the same time telling him I believed it came from a wilding growing in an orchard hedge at the back of my garden. I should feel particularly obliged by your contradicting his statement as to its being raised from a cross between any particular Pears grown by me.—W. G. L. Lovell, *Montague Villa, Weston-super-Mare.*

As to the Edgarley Pear being identical with the Esperine I have strong doubts, and may say that I am almost certain that it is not—that is, if the trees sold to me by Mr. Sampson under the name Benedictine came originally from the Edgarley. But the parentage given by Mr. Sampson precludes this idea. Mr. Sampson gives the Princess of Wales as one parent and Van Mons as the other, a parentage of which I have grave doubts. Again, as to the Edgarley and Esperine being the same I have the same doubts, although Mr. Rivers says that Mr. Porch saw a Pear which he considered to be the same as the Edgarley at Mr. Young's nursery at Taunton, "and that, therefore, the Edgarley Pear is French, and the true Esperine." Perhaps Mr. Young obtained grafts from Edgarley before Mr. Porch knew the tree. Mr. Rivers's remarks would make us suppose that Mr. Porch obtained the tree at Taunton, but Mr. Porch's remarks go to prove the contrary. Again, the Esperine first fruited with Van Mons in 1824, or thereabouts, and could not well be planted at either Taunton or Edgarley until 1830, and then as a very young tree; it would now be about forty-two years old, and the oldest inhabitant must have a short memory if he cannot recollect so far back as forty years ago. In fact, I agree with the Editors that we are in a sort of fog about these Pears, and that the two cannot well be the same. I think Mr. Lovell, Mr. Sampson, and Mr. Porch, should combine to clear away the mist.—J. Scott.

P.S.—Is Mr. Lovell's tree a seedling, or was it grafted from the Edgarley one?

STORING CELERY.

I hear the question frequently asked, How to protect Celery from damping and rotting off? The system I have adopted this season has been most successful. At the end of November I took up two rows of Incomparable White, and stowed it away in a moderately damp cellar in sand. The last stick was used yesterday (January 26th), and was as fresh as the day on which it was taken up. At the end of December I took up two rows of Manchester Red, and treated it in a similar manner, the first stick of which was used to-day. It was equally good and crisp. I shall take up two more rows as soon as we have a couple of dry days in succession, and I have no doubt the Celery will be fresh and crisp in April, or later. I send you this information, believing that so simple a mode of preserving so useful an esculent is not generally known.—Henry Smith.

Sidney Seed-sower.—A larger and improved form has now been prepared by Mr. Cox, the inventor. The improvement is that the seed-sower now delivers freely, and without choking, wrinkled or square-sided Peas. There are other advantages also: the larger size is more useful in large gardens for all sized seeds, also for market gardeners and for farmers for filling-in blank places in fields.

NEW ŒNOTHERA.

As is their custom at the opening of the new year, our contemporaries of the horticultural press have in recent issues placed before their readers elaborate notices of our gains in the way of new plants, fruit, and vegetables during the past year—all very exhaustive, no doubt; but yet we looked in vain among their notes for any allusion to a charming novelty whose acquaintance we made last year, and which, we submit, has strong claims to be regarded as A1 among the cream of hardy flowering plants. We allude to a new dwarf Œnothera, from Utah, which we saw in flower at Glasnevin last year, and for the introduction of which, as of so many other choice plants, we are indebted to Dr. Moore. Calling at the gardens one evening last summer, while walking round with Dr. Moore, he asked, Had we seen the new Œnothera? Being answered in the negative, he led the way to the lock-up garden or sanctum, where one is sure at all times to meet something new, very rare, or of much botanical interest. On this occasion, however, all else was forgotten in admiration of the lovely little transatlantic gem to which Dr. Moore introduced us. Looked at in the quiet stillness and shadows of a summer evening's close, with its circlet of large pure white flowers, raised vertically above the foliage, on long, slender tubes, and expanding their broad fair bosom to the cooling moonbeams, this lovely plant presented an appearance altogether unique and striking.

This plant is altogether unique amongst its congeners as regards habit and appearance. The best of the latter, as, for instance, Œ. missourensis, Œ. Lamarckiana, &c., though showy as regards flowers, are of a gawky, straggling habit, which detracts much from their value. The plant to which we now direct attention is just the opposite, being single-stemmed, compact, and dwarf, flowering when not more than 6 inches high, and at the end of the season rarely doubling that height. But to come to particulars. The stem is short, stout, some 8 or 10 inches high; the leaves runcinate, having long foot-stalks, which, together with the midrib, in the lower leaves are white, in the upper red or pinkish. Commencing at the base, the flowers issue in long succession from the axils of the leaves, and are elevated vertically over remarkably slender tubes, fully a span in length, in a way to produce a beautiful effect. The flowers, as compared with the plant, are of great size, pure white, the limb of the corolla consisting of four very large obcordate petals, at the base of which the anthers are placed, round the mouth of the tube, which here expands considerably, and is of a greenish yellow colour. The stigma is cruciform and considerably exserted. The above description, we are quite aware, is very imperfect, and conveys a still more imperfect idea of this fine flower. As yet, as far as we are aware, this Œnothera is without a specific name. It comes from the state of Utah, North America, and was communicated to Dr. Moore by his friend M. Roezl, of Zurich. When we saw the plant at Glasnevin it promised to seed freely, and we hope ere long to see it widely distributed, and taking a prominent position in the choice herbaceous border, or cutting a figure in some phase of subtropical gardening, for which its dwarf habit and exotic appearance seem to render it eminently suitable.—(*Irish Farmers' Gazette.*)

COOL ORCHID CULTURE.

For some time I have had the opportunity of seeing the good results attending the cool treatment of Orchids, and I purpose offering a few remarks respecting it, which, doubtless, will at least interest some of our amateur cultivators. I need scarcely say that the yearly demand for cool-house Orchids is great and increasing, nor is this to be wondered at, for they are a lovely class of plants, and can be grown at a much less expense than the East Indian Orchids, besides being productive of more enjoyment to the cultivator and visitor.

The first matter to be taken into consideration is a house suitable to their requirements. This should be so constructed as to allow the plants to be as near the glass as possible, in order that they may have the full benefit of the light, the direct rays of the sun, of course, being at all times avoided by

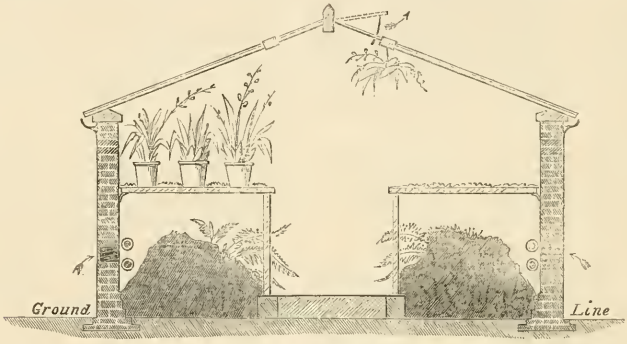
means of blinds. The accompanying figure is a section of the house here devoted entirely to their cultivation. It is about 60 feet long, 12 feet wide, and 7 feet 6 inches high in the centre. Only one flow and return pipe is used, that being sufficient to keep up the required temperature, which, to take that of winter, is a minimum of 40° and a maximum of 50°, or a mean winter temperature of 45°. During the summer no artificial heat is used, and air is admitted freely not only by day but at night. This, doubtless, is a much cooler temperature than that adopted by many; but as regards its being ample for practical purposes, I will allow your readers to judge for themselves by the following results.

In the first place must rank that magnificent Odontoglossum Bluntii; one of the stages is entirely filled with this, containing upwards of a hundred healthy and vigorous plants. Many of the bulbs measure 5 and 6 inches in circumference, while some are nearly as long. To see thirty or more spikes of this open at one time is a glorious sight, and such was the number produced by these plants during the past summer. As a proof of their free-flowering, I have taken from my note-book the following table of spikes that opened each month during the past year, which will confirm the statement made by Mr. Douglas at page 31, where he says, "They may be had in flower every month in the year."

January	4 spikes.	August	3 spikes.
February	5 ,,	September	7 ,,
March	3 ,,	October	5 ,,
April	1 ,,	November	5 ,,
May	16 ,,	December	3 ,,
June	39 ,,		
July	12 ,,	Total..	103

At the present time about thirty spikes are in an advancing state. These would average twelve flowers on a spike, many of the individual blooms measuring 4½ inches in diameter. The largest number of flowers on one spike was eighteen, although in three distinct cases single bulbs produced respectively twenty-two, twenty-four, and twenty-eight flowers, formed on two spikes. One particular plant of this lovely species has six leading growths; in 1870 the plant had but four bulbs, from which it last year produced six, and is now sending out six more, thus making twelve bulbs in two years. Such plants as these would soon form fine specimens.

In equal health are several plants of its relative, O. Pescatorei, of which an excellent variety has now twenty-five



Cool Orchid House at Fernichurst.

flowers on the spike; also O. cordatum, of which about thirty spikes are now in bloom, with from seven to nine flowers on a spike; as well as the splendid O. Hallii, of which we have three plants. One has produced seven spikes, the largest being nearly 4 feet long, bearing twenty-six flowers; total number on the whole, one hundred.

I may here remark that this plant has for some months been grown in a house a few degrees warmer, but, being the largest, of course it may reasonably be expected to produce more spikes. The strength, however, will be seen to be in favour of the cool house, for the next plant produced four spikes, the longest being 4 feet in length (from a bulb 6 inches long and as much round), bearing thirty flowers, while the whole number is eighty-eight. The other plant bids fair to follow closely, although it has not so many spikes.

In addition to the species I have mentioned there are several plants of Odontoglossum nebulosum with six and seven flowers on a spike, and many others, which would occupy too much space to particularise. I may remark that they are in equal health and vigour with the preceding.

Of Oncidiums, first stands that glorious O. macranthum, with bulbs 7 and 8 inches long, and nearly as much in circumference, surmounted by pairs of fresh green leaves from 15 to 18 inches long. One of these plants in the spring of 1871 produced a spike 12 feet long, bearing forty-four flowers, and at present it is throwing out a very promising spike. At one time last summer five plants produced one hundred flowers, which formed a splendid mass. No collection of cool-house Orchids should be without this, the most lovely of its class. A few others, such as O. cucullatum and nubigenum are in equal health.

Of Masdevallias, there is a good specimen of M. Veitchii, with sixty leaves from 7 to 9 inches long, and about an inch broad. This plant during the past few months has produced fifteen of its rich flowers; at one time it had six, when it presented a most magnificent appearance, while a plant of M. tovarensis has formed one of the most novel and interesting objects that has ever come under my notice. In 1870 it flowered with two spikes, one of which bore three flowers. Now, in general, as soon as the flowers have faded the scape is removed; in this case, however, the scapes were allowed to remain, and they did not, as one would imagine, die away, but this winter produced the one four flowers, and the other showed six, but only two of these were perfected. In addition the plant produced two more spikes: one in the usual manner bore two, the other three flowers, so that when fully developed it bore eleven flowers on four spikes. We see the Oncidium Papilio produce for years a succession of blooms in this manner, and Phalænopses will often form a lateral spike after the main stem has lost its beauty, but I never knew of Masdevallias doing so. Certainly it is no improvement to allow the plants to do so, for it must naturally impoverish them to a great extent. As well as the above, there is a healthy little piece of M. coccinea, with leaves more than twice as large as in those imported.

What a pity these mountain gems are so difficult to import from their cool homes on the New Grenadan and Peruvian Andes, where they grow at 10,000 or more feet above the level of the sea. We have forty or fifty species in books and herbaria, but how few comparatively have as yet found their way into our gardens!

In stating these results I must not forget the Disa grandiflora, which thrives admirably in this house, growing like a weed, and flowering with great freedom; last summer six small pans produced thirty-two spikes, making a grand display. I believe most of the inmates of this house have been grown there ever since they were imported, and consequently have never been subjected to a high temperature. We know that

plants of any description rarely thrive if suddenly removed from a high to a low temperature, or the contrary, yet at the same time many can be subjected to either with impunity if the heat is tolerably regular, and other circumstances, such as air and moisture, suitable.

To give some idea of the amount of moisture in this house, I may mention that the sphagnum on the surface of the pots is as moist and growing as freely as in its native swamps; in fact, it keeps us supplied for potting and other purposes, and it gives off a wholesome moisture, in which the plants seem to delight. In some places, also, the common Liverwort may be seen growing on the loose nodules of Cannel coal with which the slate benches are covered.

Most of the "cool Orchids," or those which come from high elevations, will endure any amount of water when making their growths, and should never be allowed to become thoroughly dry; for as they are often discovered close to rivers, waterfalls, and in similar places, and as some often send their roots into the water, to do so would be entirely contrary to nature.

With regard to air, when in their mountain homes they are constantly surrounded by fresh air freely circulating aronnd them, and when brought to our houses this should be admitted as freely as the external temperature will allow. Doubtless, if a little more attention were paid to this point, the result would be more healthy and robust plants, with leaves perfect to the points—a condition very pleasing to the eye of a good cultivator.

I may add, that in order to subject the plants as little as possible to the influence of fire heat, the house is protected by means of blinds at the approach of frost.—C. J. W., *The Gardens, Fernichurst.*

LILIES IN RUSSIA.

May I again ask Lily-growers in different parts of the country to give their experience of the cultivation of any sorts of Lilies which succeed well with them?

Since my last notes, page 33, I have received the following very interesting account of the growth of Lilies in Russia from my friend Mr. Wolkenstein, a distinguished horticulturist and Secretary of the Royal Russian Horticultural Society:—"I received your . . . . notes on the Lilies. I must tell you that we cultivate these bulbous plants successfully by placing them also amongst shrubby perennials, as Dielytra spectabilis, Spiræas, &c., or near the groups of woody shrubs, shadowed from the hot spring sun. We bury the bulbs 6 or 8 inches deep in the soil, laying under the bulb some sandy porous earth, and covering it with the same compound. In this way we have, in spite of severe winter frosts, every spring and summer well-flowering Lilies of the following species that are quite hardy with us: Avenaceum, bulbiferum, canadense, candidum, chalcedonicum, croceum, longiflorum, Martagon, Maximowiczii, pulchellum [qy. our Buschianum?] pyrenaicum, speciosum, spectabile, superbum, Szovitsianum, tenuifolium, testaceum, and tigrinum. As to the dung, the custom with us is to renew the ground every four or five years by adding a sufficient quantity of well-decomposed cow manure, and digging the ground well."—George F. Wilson.

STRAWBERRY PLANTING.

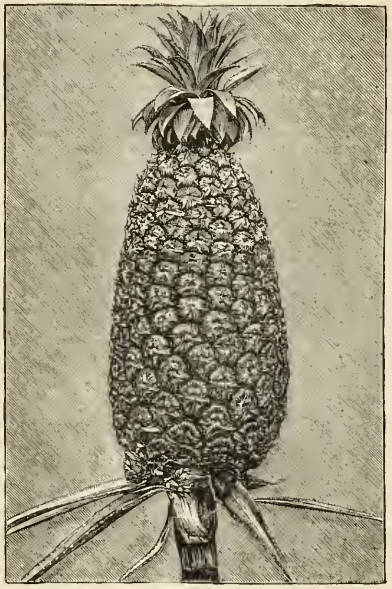
Persons who find it difficult to obtain a good crop of fruit from plants a year old may try the following plan:—To prepare plants for transplanting, a piece of ground should be selected, say 8 feet by 7 (this will plant a bed 45 feet by 9); take off the top soil to the depth of 4 inches, then have the piece covered with turf 9 inches wide, grass side downwards, replace the top soil, and plant at 9 inches apart each way. The following autumn the plants will have large crowns with strong healthy foliage. A month before transplanting cut the turf across, so as to allow each plant to have a piece of turf 9 inches by 9. The plants should not be allowed to bear fruit in the nursery bed. By the above mode a large crop may be expected the following year.

It is rather late in the season to try this plan. I should have drawn attention to it before had I not been detained in Italy several weeks longer than I had intended.—Observer.

The Royal Horticultural Society's Birmingham Show.—Messrs. Sutton & Sons have announced their intention to offer at the Royal Horticultural Meeting at Birmingham, in June next, £5 5s. for the best six dishes of Peas, half a peck of each sort, to include Dr. Maclean's Best of All, and £2 2s. for the second best ditto, also £5 5s. for the best three brace of Cucumbers, including Marquis of Lorne, and £2 2s. for the second best ditto. The competition is to be confined to noblemen's and gentlemen's gardeners.

SEEDLING PINE APPLE RAISED AT LAMBTON.

In our November issue we referred to what we considered a most promising seedling Pine Apple which we saw growing at Lambton Castle. Since then Mr. Hunter has favoured us with a photograph of a fruit of it. The plant from which the fruit



in question was cut was nearly nineteen months old. The fruit measured 12 inches in height by 20 inches in circumference, and weighed over 10 lbs. Its colour is a high orange, the scales on the bottom sides of the pips being nearly red. Including the crown, the height over all did not exceed 30 inches. In growth it is more robust than the Smooth Cayenne, and in habit less spreading; and, from its very free-fruiting qualities, it sometimes ripens its fruit before it attains the height of a Queen. Mr. Hunter informs us that he cut the fruit from which our engraving has been taken after it had been in the fruit room for three weeks, and found it quite fresh and free from speck or discoloration. One of the fruit recently ripened from a plant which twelve months and eleven days before was a moderate-sized rootless sucker, weighed 7 lbs. 10 ozs.; and another now swelling—December 9th—on a plant potted a rootless sucker last March, is 10 inches high by 16 inches in circumference, and will be ripe in ten months from the time it was potted. All have been grown in the Durham 11-inch pots, which are a small size, owing to the extent they taper to the base. The foliage is very distinct, being clad with very strong prickles set wider apart than any Pine we know. From the above qualities, in conjunction with that of its being more juicy and better-flavoured than any other large-growing Pine in cultivation, this variety must prove a very great acquisition in all collections of Pine Apples.—(*The Gardener.*)

[We are indebted to the courtesy of the Messrs. Blackwood for the above representation of this Pine Apple, which, with

the descriptive remarks, appeared in the January number of "The Gardener." Mr. Hunter informs us that from a plant nine months and thirteen days old he cut a fruit weighing 5 lbs. 13 ozs., finely formed, high-coloured, and with the pips evenly swollen.—EDS.]

THE GROS COLMAN GRAPE.

M. VIBERT, then residing at Angers, sent me this Grape some twenty years since. It bore abundantly with me, but did not ripen its fruit, being in a cold house. I have since seen it in fine perfection with Mr. Miller, of Bishop Stortford. Its berries were so fine in size and colour as to command a high price, making 9*s.* a-pound, while Black Hamburgh and Muscat of Alexandria made 7*s.* a-pound. Fully ripe its flavour is very rich, but when not so its flavour is not good; it keeps well, and requires to be "dead ripe." I send three or four berries; they were ripe in July. It seems as if it would be valuable as a market Grape from its large size, fine colour, and keeping quality.—THOS. RIVERS.

[The Gros Colman has now been grown for some years in many gardens with varied success. In some places it colours badly, its substance is hard and fleshy, and its flavour is that of a Grape, and nothing more. The fruit Mr. Rivers has sent is jet black, the substance tender and melting as a Black Hamburgh, and the flavour richer than that of any late black Grape we know.]

PRIMULA JAPONICA.

THINKING that it will interest your readers to learn something of the habit and growth of this magnificent Primula, we forward you a few extracts from letters received from Mr. Kramer, of Yokohama, Japan, who has at various times forwarded to us seeds and plants of this species.

He writes as follows:—"If the drawings in the European periodicals are true, Primula japonica must be very much finer at home than it ever is seen here. A cold climate and good cultivation have no doubt great influence, for its native country is said to be the island of Yeza. It is generally found growing on the banks of streams and watercourses in yellow loam. I have seen it growing from 2½ to 3 feet high with six or seven tiers of flowers—a magnificent sight.

"In sowing the seed it is very important to know, that as this Primula is not a native of a warm country, it requires no artificial heat for germinating, and that frequently the seed does not germinate until next spring, in fact the latter is the rule. I would, therefore, advise that the seed should be sown immediately, and left for at least six months undisturbed." (June, 1870).—"I have now some boxes which have stood for two years, and this year there are more plants coming up than even the first year" (May, 1871).

From this it appears that the seed takes a long time to germinate.

A moist yellow loam is best suited to the plant, and it is likely to improve much under cultivation. It will also prove especially valuable for hybridisation on account of its tendency to vary.—TEUTSCHEL & Co., *Colchester*.

MADRESFIELD COURT GRAPE.

I HAVE with a friend of mine to-day (January 23rd) cut the last bunch of this variety, and from what I now see it has fully borne out the character given to it by the Royal Horticultural Society. S. Simpson, Esq., of Manchester, a very good judge of Grapes, assured me a few days ago that a bunch I gave him, after hanging in a dry place, but still moderate in temperature, was kept five or six weeks amongst other thin-skinned varieties, and at the end could not be surpassed in flavour. I have it very fine in colour, with large berries. I am very sorry that I have not more of it on account of its excellent quality. I am devoting a house, about 40 feet by 18 feet, to its cultivation. The constitution is good, and I have no hesitation in saying it is a very desirable variety to grow.—JOSEPH MEREDITH, *The Vineyard, Garston, Liverpool*.

HORTICULTURAL CONGRESS AT BIRMINGHAM.—We are requested to announce that the Birmingham Local Committee, in connection with the Royal Horticultural Society's visit in June next, intend that there shall be a Congress during the show week, the details of which will be published as soon as they have been decided upon. The arrangements will, we believe, take something like this form: On Tuesday, June 25th, there will be a public dinner; on the following three days, Wednesday, Thursday, and Friday, a luncheon at a convenient hour and at a very moderate figure; and afterwards each day, as per a programme to be issued in due course, papers will be read, to be followed by discussions upon them. With a view to enable the Committee to make suitable arrangements, it is requested that all who are interested in the success of the Congress, and who have suggestions to offer, and all who are willing to read papers and take part in the Congress, will at once communicate with the Hon. Secretary, Mr. E. W. Badger, *Midland Counties Herald* Office, Birmingham. In the case of those who wish to read papers, it is desirable that they should state the subject of them, and the length of time they desire to occupy. These communications will be laid before the Sub-Committee, whose special business it will be to arrange for visitors, the dinner and luncheons, and the Congress. Early communications will be much appreciated.

IRON IN SOIL FOR ROSES.

THE question raised in your Journal by a correspondent on the effect of iron upon Roses and other plants is one of very great interest. I have not yet had a lengthened experience of the results of manures on Roses, but, like most of those who have studied the subject of manurial agents scientifically, I do not yet believe in the plant differing very materially from most others in its food-requirements. One general theory taught is, of course, that only those elements which enter into the composition of the plant are valuable as manures, and there is no proof, or well-sustained attempt to prove as yet, any agent is of use as a tonic or stimulant which does not feed the plant, or, like lime, make soluble or decompose the valuable matter in the soil. I do not allude here to the mechanical effect of soil materials, as this is to a great extent distinct. Some plants, of course, will put up with a poorer soil, and others, which are often called gross feeders, &c., will take more food from the soil, and particularly food of a nitrogenous character.

From general testimony it seems as if the Rose belonged to this class of plants, but I should like to see a trial of the experiment of growing Roses in a rich mineral soil against those treated with ammonial manure. It must be remembered, however, that we do not grow this plant for its seed, like Wheat, but for the leaves and flowers. I must confess being sceptical as to these strong shoots on your correspondent's Roses being sent up by the iron.

Iron does occur to the extent of a trace among the constituents of most plants, but hardly seems a necessity, and it is present in nearly every soil in more or less abundance. Its useful chemical effect on the soil would be difficult to see, the oxide being a very mild base—not to be compared in this respect with lime. As an indicator of the condition of soils by colour it is well known, and, doubtless, may have some effect on that of plants, both leaves and flowers. In some combinations it is considered most injurious, and your readers, unless indifferent to the loss of their plants, must be careful in applying it.

It almost makes one smile to see the various nostrums recommended by a "hundred doctors" to achieve great results. One vaunts soot, another malt sweepings, a third nitrate of soda, a fourth sulphate of ammonia, and another guano, believing them all to have a totally different result, whereas all simply depend, or nearly, on some form of nitrogen for their efficacy.

I was also somewhat amused to think of some of the readers of a contemporary being induced by an article from a distinguished florist carefully to collect all the hoof-parings from the farrier's, as being the very best manure for Roses; failing to obtain which, strange to say, bones were to be substituted, but on what principle it would be difficult to say, except their being equally parts of an animal. The former had one recommendation—it was a lasting manure. No doubt it would be; I hope their patience would be equally so. About as well make a man sit looking at his breakfast until dinner-time, and praise the lasting qualities of the food.

At a future time I should like to say a few more words on this subject if your readers would care to see them, but enough for the present. I would conclude by saying I do not wish to have given the impression that experiments of all kinds should not be persevered in, but a little more knowledge among hor-

ticulturists of accepted and well-grounded facts must be desirable and beneficial.—J. S. K.

BROCKWORTH PARK PEAR.

I WILL give you the particulars. In the year 1855 I advised my most intimate friend to buy an estate in the parish of Brockworth, and also promised to put it and all the buildings in good order. To do this I found it advisable on the largest farm to take down the house and all the farm buildings, and I erected new in the most convenient place. When the place was nearly finished a gentleman took it. About the beginning of March, when I was laying out the garden, my intention was to order the trees from you the following autumn, but he was so very anxious to have them at once that he prevailed on me to give him a list of what I meant to plant, and he fetched them at once from Cheltenham. I warned him of the consequences, and told him the probability was that he would get anything but what he ordered, which proved to be true. The tree in question was planted for Winter Nelis against a wall with a south-east aspect. I saw at once it was wrong; it bore three Pears the following year, and one was sent to me. I found it a very good Pear, and had a scion from it for myself; of course I consulted "Hogg" and came to the conclusion it was White Doyenné with a great many aliases. Since then I have let the farm to another person and he sent the Pears to Wheeler.—(*Extract of a letter from A. Bubb, Esq., to Mr. Rivers.*)

SANDRINGHAM HOUSE.—No. 2.

IN resuming our remarks on the fruit and kitchen garden we will first take the planting of the walls, of which the construction has been already described. Of the main south-aspect wall more than one-third the length is covered with glass; the remainder is planted with Peaches, Nectarines, and Apricots, with a few Pears. The Peaches consist of such standard kinds as Grosse Mignonne, Bellegarde, Barrington, Late Admirable, and Walburton Admirable, and of each there are several trees; and among the Apricots are several trees of the Moorpark, Hemskerk, Royal, Kaisha, and Musch Musch, the last two excellent for preserving. The south side of the wall running parallel to that just noticed, but on the other side of the garden, is planted with Peach, Apricot, and Pear trees; its north aspect with Black Circassian, Bigarreau, May Duke, and Morello Cherries, and with Plums. Pears and Plums cover the east and west aspects of the other two walls, and consist of admirably trained trees of varieties of established reputation for excellence, selected with the view to successive ripening; indeed throughout, whether against the walls or in the rows across the vegetable quarters, the number of trees planted has been in proportion to the keeping qualities of the fruit.

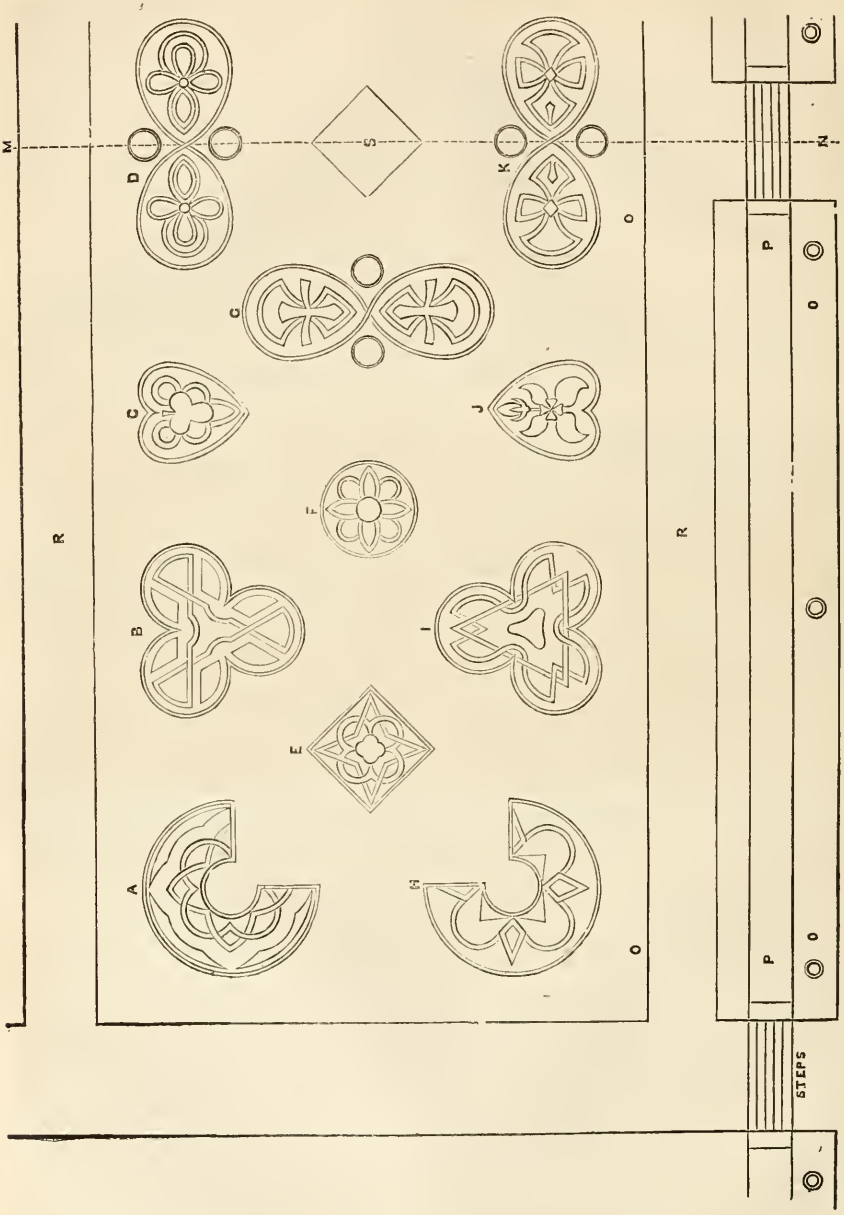
Mr. Carmichael says that his Peach trees on the open walls never fail to produce a crop with no other protection, even in spring, than the fixed coping; and he considers that, in his locality at least, no matter how unfavourable the subsoil, they will do so provided the trees are kept free from insects, and, in the case of their being in a stiff or clayey subsoil, lifted every two years in order to bring the roots more under the influence of the sun's heat. To keep the trees free of insects they are dusted when the flowers have set, or as soon as any green fly is perceived, with a mixture of one part of snuff and two parts sulphur. The absence of insect-curled leaves contributes to the ripening of the wood, and to promote this also, after cutting off the half of every leaf shading the fruit when it is swelling, all the leaves are cut in half after the crop is gathered. Mr. Carmichael, like many others, is no advocate for wiring the walls out of doors, considering that the trees succeed better against the brickwork trained in the old-fashioned way with nails and shreds. Of the medicated shreds introduced some time ago he speaks highly on the score of durability and convenience. It must be added that all the shoots of the Peach trees are loosened from the wall during the winter, only the main branches being kept nailed-in, and harder, better ripened wood it would be difficult to find. In the forcing houses the trees are all painted, as soon as pruned, with fresh-slaked lime and water, and this coating is left till it disappears in course of time, leaving the bark clean, bright, and insectless. The Gooseberry and Currant bushes are dusted with lime if insects or mildew appear; lime, in fact, is considered the best remedy for all insects which appear, and if one might judge by their fewness it must be an effectual one indeed.

Among the kitchen-garden crops Sea-kale holds a prominent position, great quantities being daily required, and the extent of ground cropped with it alone is as large as a moderate-sized kitchen garden. The ground is planted in rows 5 feet apart, and the plants are 18 inches from each other in the row. As soon as the leaves fall in autumn each crown is marked with a stick and covered 8 inches deep with fine soil taken from the spaces between the rows. The ground is thus thrown into beds 2 feet wide, and 3-feet alleys. Some of the latter are filled in November with littery dung, and the beds are likewise covered with the same material. A fresh bed is covered up every eight days so as to keep up a succession, and after taking the crop the crowns are left exposed; only four or five shoots are allowed to grow, and in this way not only do the plants remain many years without renewal, but the quality of the produce is excellent. It must, however, be remembered that the soil is light and friable, and probably if the same practice were adopted on ground of a retentive nature the shoots would not be so large as where covering with pots is resorted to. Asparagus is also grown extensively, there being no less than an acre and a half occupied with it. The whole is grown in single rows 3 feet apart. Mr. Carmichael advocates making the beds 6 feet deep, filling up with turf and rich manure, and staking the grass; in this way shoots of the largest size are obtained. A fresh bed is sown every year, and transplanted in the following year.

Among the other vegetables may be noted large breadths of Broccoli, Cauliflowers, and Lettuces, of which the Stansted Park is a great favourite. In Celery, Sandringham White is grown almost exclusively, being that most esteemed at table on account of its crispness, and in the garden from its not being liable to run to seed.

We will now look into the forcing houses, which extend about 320 feet along the main south-aspect wall. They were erected by Mr. Gray, of Chelsea, and, without presenting much ornamentation, are well designed for their several purposes and exceedingly substantial. All the houses are 50 feet long, but of varying height and width, each increasing 2 feet in height and 2 feet in width as we pass from the ends to the centre. Entering at the west end, first there is the early Peach house 14 feet wide, 14 feet high at back, with 2 feet of brickwork and 2 feet of glass in front. This is heated by three flows and one return, and the sashes at back are opened simultaneously by a cog-wheel and lever, and the front sashes push out by lever power. The same means are adopted in all the other houses. The trellis is about 20 inches from the glass, and is formed of iron uprights let into stone blocks, between which are stretched light iron rods at 8 inches apart. The trees in this house, which were all in blossom, are Elruge and Murrey Nectarines, and Bellegarde and Stirling Castle Peaches. The last, Mr. Carmichael considers the best Peach for forcing to ripen in the first week of May. Next comes the earliest vinery, heated by four flows and two returns. It is planted chiefly with the Black Hamburgh. The late house, similarly heated, is the next in succession, and contains such as Lady Downe's and Alicante. Then follows the second vinery, in which the Black Hamburgh is the principal kind. These two houses are the centre of the range, and 18 feet high at back, and the same in width. Next comes the Muscat house, at present occupied with bedding plants, and finally the second Peach house. In the vineries, of which the borders are partly inside, partly out, the Vines are planted, one under each rafter and one in the intermediate space. It will thus be seen that the rods are rather close together, and instead of allowing them to extend rapidly Mr. Carmichael only retains a limited amount of stout well-ripened wood at the ends of the rods, in order to have the lower eyes strong and fruitful as well as those nearer the top.

The Pineries are the next important structures. There are three half-spans of 100 feet long by 20, 18, and 16 feet wide respectively, and in the same range are Cucumber and Melon, and Strawberry houses. The varieties chiefly grown for winter are Smooth-leaved Cayenne and Black Jamaica, and for summer the Queen. Of these there was a fine stock both of fruiting and succession plants, nearly all of them planted out, and a number of suckers in pots. In point of vigour and cleanliness there was nothing left to desire—no sign of mealy bug, scale, or insect of any kind; partly, no doubt, owing to careful supervision, and partly also to the plants not being confined to pots, but having their natural freedom as regards the roots. Under the beds in which these are growing, chambers have been formed by resting larch battens upon bricks-on-bed, and on the battens a paving of bricks touching each other at the edges is laid, then leaves and soil. In these and other houses



FLOWER GARDEN AT SANDRINGHAM.

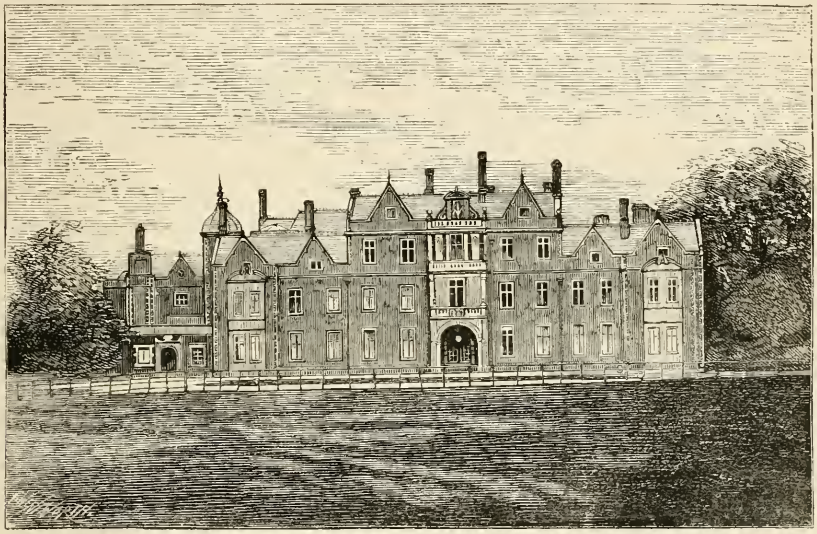
REFERENCE TO PLAN OF FLOWER GARDEN AT SANDRINGHAM.

A. Flower bed edged with Variegated Holly, 6 inches high.
B. " " Euonymus radicans variegatus, 6 inches high.
C. " " Cupressus Lawsoniana, 6 inches high.
D. " " Common Ivy, 6 inches high.
E. " " Cedrus Deodara, 6 inches high.
F. " " Cryptomeria elegans, 6 inches high.
G. " " Variegated Ivy, 6 inches high.
H. " " Cotoneaster microphylla, 6 inches high.
I. " " Euonymus radicans variegatus, 6 inches high.
J. " " Japan Yew, 6 inches high.
K. " " Common Ivy, 6 inches high.
M. N. Centre of garden, the other half is similar.
O. O. Grass. P. P. Grass slope. R. R. Walks. S. Statue.

The designs marked on the beds show the style of bedding-out adopted.

provision is made for securing a supply of water of the same temperature as the house by a tank in front under the iron grating which serves as a path.

In front of one of these houses is a sunk pit for forcing Strawberries, with which, in fact, the shelves of nearly every house are filled. To give an idea of the demand for this fruit we may state that no less than 10,000 pots are required to keep up an adequate supply, and that gathering begins on the 14th of February. For the earliest gatherings 5-inch pots are used; for plants to fruit in April and May sometimes 8-inch pots are employed. The runners to furnish these plants are all layered in small pots, for each of which a hole is made with a crowbar, and the pot pressed down; a stone is put on to keep the runner steady, and as soon as rooted the plants are shifted into 5-inch pots and placed on an open piece of ground fully exposed to the sun, ranging them in 4-feet beds with 2-feet alleys between. In the first week of October the plants intended to be first forced are laid on their sides, and the rest are all plunged in a border to the rims of the pots. There they remain without any protection till required for forcing. Every week a fresh



Sandringham House—East Front.

lot of plants are removed to the pit, which is filled with leaves, and further heated by a hot-water pipe. When the fruit begins to swell Mr. Carmichael puts a little of Standen's manure on the surface of the soil, and as soon as the bloom is set the fruit is thinned out so as to leave from twelve to eighteen to each pot. The extent to which the different varieties are grown for forcing is British Queen, 2000; President, 2000; Eclipse, 1000; Sir J. Paxton, 1000; Premier, 500; La Constante, 500; and the remainder consists of Dr. Hogg, President, Cockscomb, and some other varieties. The last lot generally flowers out of doors, and is only brought in if likely to be needed to keep up the succession till the out-door crops come in.

Peas, likewise, are forced in quantities, and for this purpose Maclean's Little Gem is alone employed. This is sown at the end of August in 8-inch pots filled with soil (which is pressed down) to three-fourths of their depth, eight Peas being placed round the sides. The pots remain out of doors as long as the weather is mild, but before frost they are placed in a temperature of 45° to 50° at night. This sowing begins to produce in the first week of December, the plants bear successively till February, and are succeeded by a sowing made about the end of September. The plants we saw were not only furnished with an abundance of their little pods, but were even ornamental by their blossom. There are so few who are not lovers of Peas, even when these are in abundance, let alone a rarity, that we have thought the method by which Mr. Carmichael produces them, and not in small quantities, is worthy of description and imitation. Green Peas in December and January are a rarity to be sighed after by many, but rarely obtained; but as Mr. Carmichael manages them there seems to be little difficulty about it, and yet we all know that the Pea will not bear forcing. The Kidney Bean, on the contrary, is well known as one of the easiest things to force, and of it, of course, in a place like Sandringham there was no lack. Cucumbers and Melons receive their share of attention, and of the former there were numbers hanging from the trellis ready for being cut. In one of the Pine pits Musa Cavendishii was throwing out a cluster of fruit which is likely to prove of great weight; and near it was the Mangosteen, which Mr. Carmichael hopes some day to fruit, but the plant is young as yet, and so far as we know it has only once borne fruit in this country.

Before quitting the kitchen garden the Mushroom house must be noticed, not only on account of its size but the fine crops it contained. This is 80 feet long by 15 feet wide, there being a 5-feet path up the centre, and on each side 5-feet shelves, three tiers at the back, two tiers in front, for the house is a lean-to against the north wall of the garden. The sides of the beds are of iron, with iron cross-bars, and the flooring is wood laid longitudinally from cross-bar to cross-bar. It is heated by a flow and return pipe, with evaporation troughs under the centre of the iron-grated pathway. On the same side of the wall are the fruit-room, which is large and well-fitted up,

potting, packing, and tool sheds, gardener's rooms, and underneath spacious root-cellars.

The plant houses are not large, and are chiefly filled with subjects suitable for in-door decoration, such as Poinsettias, Adiantums and other Ferns, Chinese Primroses, Cyclamens, Geraniums, Gardenias, which are great favourites for the button-hole, Begonias, fine-foliaged plants, and Azaleas.

In the pleasure grounds much has been done and much is still to be done. One great improvement is a new drive up to the east or main front of the house (of this we give a view taken by Mr. Pridgeon, of Lynn); formerly the drive led past the offices, and in unpleasant proximity to them, but now by a graceful curve they have a wide berth, and the approach is more in accordance with the dignity of the house, and will be still more so when the Deodars at the sides among the Laurels shall have attained a greater height. It is, however, on the west front that the principal alterations have been made, and the most important of these is the new flower garden which is represented on page 101. The beds of this are slightly raised above the rest of the surface, the outer edge of the soil forming a miniature ramp as practised by Mr. Gibson, in Hyde Park, and this is surrounded by various evergreens. The interior at present is filled with autumn-sown annuals and plants for spring flowering, and already, though the ground was only laid out last autumn, the appearance is very ornamental, and it will be much more so in summer. The evergreens round the beds of themselves give an aspect of life even in winter. The length of this panel, of which one-half is represented in the engraving, is within the walks 192 feet, its breadth 60 feet. On the same front, but nearer the house, there is a small garden on gravel with Box-edged beds, and beyond the larger new flower garden a neatly laid-out bulb garden, of which the effect from the terrace walk in front of the mansion is no doubt good when the bulbs and other plants are in flower.

A few more notes on the pleasure ground and we have done. There are many pretty views from the terrace on the west front, over the flower gardens just noticed, especially towards the church, of which more than one view is obtained; and the simple tomb of the young Prince of a day, so well depicted in *The Graphic* two or three weeks ago, can be seen from a point near the south-west end of the terrace walk.

The park and pleasure grounds are not so extensive as those attached to many country mansions, extending only to about 120 acres; in the pleasure grounds Deodars, Picea nobilis, and a considerable variety of Conifers have been introduced with excellent effect, and on each side of one walk is an avenue of various species of these planted by distinguished visitors as mementos of their visits. The old lake, merely a pond, has been abolished, and a new one formed, indeed, re-formed as well, for since it was made the depth throughout has been reduced to 4 feet as a safeguard against accidents on the ice. The rockwork about it is well executed in the carr stone of the neighbourhood, we believe by Mr. Pulham, of Broxbourne, who also constructed a boat-house or boat-cavern, which has been highly approved of.

The park is well wooded, but contains no trees remarkable for great age and size; there is, however, an avenue of fine Limes leading from the Norwich gates to the house. Great improvements have been effected in remaking walks, in planting trees and shrubs in all parts of the grounds; and the energy with which all this has been carried out and the good immediate effects produced are highly creditable to Mr. Carmichael, whose courtesy in explaining all works connected with the garden no one who has had the pleasure of visiting it can fail to appreciate most highly.

Mowing Machines.—We warn our readers from employing tinkers or any but the makers of the mowing machine or one of their agents to repair it. It is unfair to the makers, and mistaken economy in the purchaser. We have known instances when the tinkered machines would not mow, and the owners blamed the makers!

DEATH OF MR. THOMAS OSBORN.

It is with the greatest regret that we have to announce the sudden death of Mr. Thomas Osborn, of the Fulham Nurseries, on the 28th ult., at the age of 53. Mr. Osborn was one of the two sons of the late Mr. Robert Osborn, whose death we noticed a few years ago, at a very advanced age, and like his father was a man whom to know was to respect and to admire. He was a thorough gentleman in the best sense of that word, and he will leave a great blank behind him among those with whom he was so long associated in the world of horticulture. Mr. Osborn was present at the last meeting of the Royal Horticultural Society, apparently in the enjoyment of his usual health, and took part in the proceedings of the day; and we feel assured that the intelligence of his premature death will have a saddening effect on the numerous friends he has left behind.

MRS. PINCE'S MUSCAT GRAPE.

Notwithstanding all that has been said against this Grape, it is evident that it begins to be a great favourite with many. For my own part I consider it the very best late variety in cultivation, and I have no hesitation in saying that I believe it will be, when its culture and merits become better known, the most popular late variety in every garden establishment.

I say culture, as I think there is something in this that has been misunderstood, and so has caused disappointment, consequently bringing much abuse on this good variety. It is well known that most of our best Grapes require some special treatment to bring them up to that standard of perfection so prized by all good Grape-growers; neither is Mrs. Pince's Muscat an exception to this rule, and if growers were to give their experience for and against, doubtless the special requirements of this variety would be elicited, for, as Mr. Pearson justly states at page 17, a man may miss his way in the cultivation of a new kind of fruit without being exactly a fool.

With your permission I will state my experience. In my previous situation I received some of the first Vines of Mrs. Pince that were sent out. There were at that time, and still are, various opinions with respect to the right place to plant this variety; some advocated for it the heat to which Muscat houses are in general kept, others cool treatment, if I may so term it. I planted a Vine of it in the Muscat house; also one in a comparatively cold house. The border in both instances was well prepared, and the Vines received the same treatment as regards pruning, &c. Perhaps I ought to state they were not allowed to carry any fruit the first season. The following season they broke freely and very strongly, showing an abundance of bunches, which were reduced to the required number.

The Vine in the Muscat house showed the largest bunches in the embryo state, in fact throughout; in both instances they were all that could be desired with regard to setting. In the Muscat house the berries swelled off evenly and to a large size, but the somewhat drier atmosphere and the extra amount of light which was admitted by lateral pruning, and which give a good finish to the Muscat of Alexandria, failed to do the same with Mrs. Pince's Black Muscat, and the colour of the latter as grown under the circumstances may be described as dingy red, although in bunch and berry it was everything that could be desired.

In the cold house the berries swelled evenly at first, but many of them after attaining the size of Peas remained stationary, which fault often destroyed the appearance of the bunches; notwithstanding, the Vine finished off a fair proportion of good-sized bunches, the berries of a medium size, with a deep bloom, and as black as Sloes. The flavour of this variety is generally acknowledged to be good. In my opinion it improves like that good variety Lady Downe's by being allowed to hang, and the flavour does not arrive at its best until after Christmas when the Grapes are grown for late use. My experience with Mrs. Pince's leads me to believe that to grow it to perfection it requires a house devoted to its culture, similar treatment to that generally given to Muscats until the ripening process commences, when a cool moist atmosphere should be maintained with an abundance of air; I would even advocate a little shade during bright weather. If these points are attended to, with the culture generally given to the Grape Vine by skilful cultivators, I have no doubt but this variety will produce bunches and berries of such a size, with a deep bloom, as black as Sloes, a rich agreeable flavour, and such good keeping qualities, that it cannot be equalled by any Grape in cultivation. I have drawn this conclusion not only from my own experience with it, but from what I have seen of it when it was growing in the Exeter nursery previous to its being sent out, and from what I have seen of it since in several good gardening establishments.—Thomas Foote, *Gardener to Sir A. F. Elton, Bart., Clevedon Court, Somerset.*

Barometrical Fall.—My barometer to-day (24th ult.) was 28.24° ins. in the morning—lower by 0.16 than I ever registered

before. I have been expecting a gale all day, but it has evidently been on the south-west of Ireland or somewhere thereabouts.—C. P. Peach, *Appleton-le-Street*.

[The barometer at Pimlico, near London, was 28.35 ins. at the same time.—Eds.]

WORK FOR THE WEEK.

KITCHEN GARDEN.

As the season has been so mild it has been difficult to wheel manure on the ground; as soon, therefore, as the ground is fit, let this work be forwarded as much as possible for all spring crops. Where dung will have to lie on the surface until March, it should be soiled over immediately, or drying winds will steal away its beneficial properties. Spring *Broccoli*, such as Grange's or Knight's, now coming in should be protected. Push a handful of soft hay amongst the leaves. Sow a little *Celery*, *Cauliflower*, and *Lettuce* seed in heat. If the early *Peas* appear above ground throw over them a handful of sawdust in a ridge, but this must be removed when their leaves are expanded.

FRUIT GARDEN.

As soon as the blossom buds of Apricots can be distinguished, the trees should be pruned, and nailing completed. The eggs of the caterpillar which so much infests the leaf should be hunted for and destroyed; they are deposited on the branches in circular groups, of about the size of a Parsnip seed, look somewhat like it, and have the appearance of being pasted on. The trees must have protection forthwith. Take care to secure bundles of the main twigs of Apple prunings, tie them at each end, and put them in some dry place; they are very useful in summer. Prune and nail Peaches and Nectarines; as soon as they have been nailed, soak the trees and wall with soapsuds, and when dry take a bowl of sulphur mixture (sulphur blended with softsoap water until as thick as paint or nearly so), and draw a strip with the brush between every two shoots. This is a good preventive of red spider. Look after Gooseberry buds; country folks in some places tie feathers over the bushes to keep birds away. In wet weather prepare shreds for nailing, make tallies, and look over stored vegetables, Potatoes, and Apples.

FLOWER GARDEN.

Lawns and gravel walks will now be benefited by a thorough rolling. Examine all belts at the outskirts of the kitchen garden, remove deciduous trees where they injure the best evergreens, and introduce Hollies or trees of a permanent character in blanks. If not already done, stake newly planted trees carefully; the harm which has lately resulted from inattention to staking has in some places been very great. Procure Rose stocks, and plant them in lines on highly manured ground in the kitchen or reserve garden. Should heavy snow or severe weather set in, Pinks and Carnations planted in the open border will run some danger of destruction in those localities where hares and rabbits abound. I lately saw in a florist's garden, in the immediate vicinity of a large preserve, a simple and efficacious remedy. It consisted in laying small pieces of Larch spray or branches between the row of plants, and then placing other branches on the top of these; air and light have free access to the plants, and as spring advances the coverings are removed, for as vegetation progresses more palatable food in the shape of young Clover, &c., will entice the rabbits to feed at a distance. Tulip seeds may now be sown in a compost of equal parts of leaf mould and sandy peat. They may be placed at equal distances, almost touching each other, on the surface, and gently pressed down, covering with the same soil to the depth of an eighth of an inch. As the foliage of the bulbs planted in the main bed shows itself above ground it should be covered with sandy peat, but this must be done before it opens, as soil getting into the heart is very detrimental.

As soon as you perceive that the Auriculas have made a start give them occasional waterings with weak liquid manure; that made with sheep dung is best. Should premature blooms show themselves, allow the stem to rise high enough and remove the pips. To cut or pull the stem at this season often has an injurious effect on the plant, by causing it to decay down to the heart; by simply removing the pips this is avoided, whilst the plant is strengthened.

GREENHOUSE AND CONSERVATORY.

Among the plants in the mixed greenhouse may be enumerated Oranges, Lemons, Banksias, Chorozemas, Pimeleas, Epacrises, some Heaths placed in the most airy part of the house, with many other flowering plants interspersed. For the present apply air abundantly in suitable weather, but we shall certainly meet with a sudden atmospheric change. Correas, Polygalas, and Acacias will now begin to blossom freely; see that they are carefully watered—the Acacias require much moisture. Care must be taken that Camellias receive no check, otherwise their buds will be endangered. Brugmansia sanguinea, a noble conservatory plant, demands similar attention. Climbers should be neatly trained, and every plant that requires it, previous to being introduced into the conservatory, should be staked. At present we may expect this structure to be furnished with the following plants in flower: Luculia gratissima, Epacris, Euphorbias, Pimeleas, Boronias, Cinerarias, Gesnera zebrina, Eranthemum pulchellum, Primula sinensis, Pinks, Azaleas, Hyacinths, Narcissus, Tulips, and Neapolitan Violets. Of these the stove plants should be placed in the warmest part free from cold draughts or currents of air, and the New Holland, greenhouse, and others of the more hardy plants nearest to where air is admitted. Many of the plants will require frequent changing, and neither stove nor greenhouse plants should remain in this structure long enough to be injured.

STOVE.

Here there is a constant source of interest, many interesting plants being at all seasons in bloom, while others are making their growth, and some are resting. Place a few of the early-flowering Gesnera zebrina in the resting corner to ripen-off gradually for early flowering again. Select a few Gloxinias and Achimenes in variety, shake them out, and put the former in open turfy porous loam, heath soil, coarse charcoal, and sharp sand well incorporated, and do not pot too firmly. The Achimenes tubers should at first be placed thickly in pans, and potted singly as they push, in leaf mould and light loam in a very coarse open state, with a fourth part of charcoal. These two tribes of plants delight in a moderate bottom heat. See that no plant is suffering from want of water. Take advantage of the lightest days for applying the greatest portion of humidity. If the green fly prevails smoke occasionally with tobacco, and see that there is no other kind of vermin encouraged. Allow no plant to be injured from want of timely staking. Some of the Orchids which are commencing growth, if dry, may have a little water applied at the roots. This must be done cautiously. The best way is to apply it round the sides of the pot, taking care not to saturate the soil round the collar. See that the fresh potting material undergoes a kind of quarantine before it is introduced into the house. The blocks should be immersed in boiling water.

FORCING PIT.

No diminution of temperature must be allowed in the forcing pit. Pinks after they have made a little growth require to be removed to a cooler place, otherwise the buds will fail. Gardenias require a moist warm atmosphere. As the season is at hand when increasing the stock of plants will demand attention, prepare a place which will afford the required convenience. There is scarcely a gardener who is not called upon annually to apply his skill to replace the losses that invariably attend the occurrence of a rigorous or otherwise unfavourable season, and yet we rarely find a proper situation appropriated for the purpose. This is partially owing to the facilities which exist for propagating the plants principally in demand for decorating the flower garden, such as Pelargoniums, Fuchsias, and Verbenas, in the common plant houses; and we consequently see them crowded with pots of cuttings to the destruction of order, besides being the means of introducing various insects. I would recommend a small pit constructed with beds to contain plunging materials, and provided with a heating apparatus capable of supporting a bottom heat of 90°. This, with a complement of bell-glasses, would enable the gardener not only to obtain his stock of summer plants with certainty and expedition, but give him the opportunity at the most suitable seasons for multiplying rare plants and those difficult to strike. —W. Keane.

DOINGS OF THE LAST WEEK.

KITCHEN GARDEN.

Owing to the wet weather the work has been very limited. An opportunity has been given for sweeping the walks, and the rains have washed them clean and solid.

The mild weather, though so wet, has been favourable to all the hardier vegetables, and tall Scotch Kale headed is now showing fine side shoots, which I always consider much better than the main heads. We have been taking the small heads

from a late piece of Brussels Sprouts, as these heads are very sweet and different in flavour from the knobs at the sides. The earliest have produced plentifully. Cauliflowers under glasses have had the soil pricked over with a small fork, and a little dry sandy compost added; for though uninjured as yet, such continued damp is apt to affect them. Lettuces on ridges are not so large as they were, but a change of weather will revive them. All under glass will be the better of a little dry surfacing, which will give them a drier atmosphere.

The weather has afforded a good opportunity for pointing sticks and stakes, making tallies, washing pots, cleaning glass, and washing and limewashing the walls of pits and houses.

Washing Pots.—On the whole nothing is better than a vigorous scrubbing with water heated enough to be comfortable. We have used other means to remove the green and slimy matter that will accumulate, and though the cleaning is more quickly done, the pots often retained something undesirable from the processes used. The same may be said of woodwork and glass. For them weak warm soap water will be an improvement, but if the soap water is strong, or contains much soda, paint and putty will suffer loss or more.

Limewashing walls is often done very inefficiently. It is easy to draw the lime-brush over, and thus hide for a time all the filth beneath, but though this is better than nothing in a cottage, it is but a poor makeshift, as the dirt is not removed, but for a time merely covered up. It is just the same as respects the walls of our plant houses. Such washing, even, does not greatly protect us against insects, as repeated coats are sure to crack and admit the air to the eggs of insects. Though requiring more time, it is time well spent, to wash away most of the old limewash with warm water before adding the fresh lime. This limewash should not be so thick but that it will enter freely into every hoe and cranny of the walls. The fresher the lime the more firmly it will adhere. To secure this object much also depends on the temperature of the water used in making the limewash; hot water is in every way superior to cold water. Limewash will set all the more firmly from having a portion of Portland cement mixed with it immediately before using it.

FRUIT GARDEN.

In fine dry days we proceeded with pruning, and preparations were made for planting, but the ground was too wet to pack roots as they ought to be. Excess of moisture is anything but advantageous to small fibres. It helps to rot them, instead of to encourage growth. Late Grapes hanging, required a brisk fire and air in the early part of the day. The only thing to be done with Peaches in bloom was to give more heat and air during the day, and to keep them rather cool at night. A few hours' sun would do much good.

The gales here have been very severe. Early on the morning of the 24th our barometer was considerably below 28 inches, the lowest we had ever seen it, but as day began to break it rose, and in the forenoon quickly. Such a gale would try some of our new modes of glazing, and reports would be very interesting. By using small wedges to sashes we suffered no breakage of glass, with the exception of one small ventilator, 20 by 24 inches, hinged by two screws as pivots, which was blown out and smashed. The great danger of using large squares, as for orchard houses, and glazing in the usual way, is that if a large square or two go out, the wind gets in and unsettles a number more. So long as the wind is kept out there is little danger. In this respect placing the glass in grooves instead of on rebates with putty, is safer, provided the grooves allow of expansion, and the glass is still firm enough not to slide or rattle and let the air in. We have heard much about having a breeze, if not a gale, in our fruit and plant houses, but it is often the wisest policy to keep such rough visitors outside.

ORNAMENTAL DEPARTMENT.

Wooden Rollers.—The mild weather has encouraged worms to throw up their heaps on the lawns, and thus disfigure the bright green the grass would otherwise present. Sweeping is not to be thought of in such weather, nor in any weather if there are no leaves or bits of wood, as well as the worm heaps. The wooden roller soon puts the latter out of sight. A young man can walk quickly with a roller a foot in diameter and 3½ to 4 feet long behind him, and the comparative lightness of the roller is an advantage for this purpose. Part of the worm heaps is squeezed down out of sight, and part adheres to the roller, and must frequently be scraped off with a piece of hoop iron or wood kept on purpose. Next, or even equal to the Daisy-knife in summer, nothing will so soon improve the appearance of a lawn in winter as a light wooden roller.

Planting and Transplanting.—We proceeded with these operations, though in the latter case we had to bale the water out of the holes that had been made previously. When the soil is too wet the packing of the small roots and fibres cannot be done in a satisfactory manner. Drenching the roots of large specimens on planting in winter we have long considered a mistake, as it keeps the roots long wet and cold as if embedded in a morass. The water would be beneficial if judiciously given just as the buds and roots begin to move.

The weather furnished an opportunity for potting, tying, training, and washing plants that otherwise might have had nothing more than a skiff from the syringe. A good syringing, a wash, and then another syringing, by keeping foliage clean and healthy, are the best safeguards against insects. Two great preservatives against insects are a comparatively low temperature at night, and avoiding a high temperature and a dry atmosphere during the day. Unless these conditions are secured red spider and thrips will soon be your acquaintances. There are some insect enemies that you can hardly eradicate, unless you crush them, bury them, or freeze them out of existence. The mealy bug is one of these. You may manage to clean every plant in a house, but if every crack and joint of your platforms of stone, slate, or wood be not thoroughly examined the enemy will soon reappear in as strong force as ever. If there were no climbers, and the plants could be removed from the house, a free application of hot water alternately with exposure to frost, would be the most effectual remedies.—R. F.

TRADE CATALOGUES RECEIVED.

P. Lawson & Son, 20, Budge Row, Cannon Street, London, E.C., and George IV. Bridge, Edinburgh.—*Catalogue of Kitchen Garden and Flower Seeds, &c.*

W. Rumsey, Joyning's Nursery, Waltham Cross, London, N.—*Select List of Garden, Flower, and Farm Seeds, Border Plants, Evergreens, &c.*

Edwin Cooling, 18, Iron Gate, and Mile Ash Nurseries, Derby.—*Catalogue of Seeds.*

Smith & Simons, 36 and 38, Howard Street, St. Enoch Square, Glasgow.—*Cultural Guide and Descriptive Seed Catalogue.*

E. G. Henderson & Son, Wellington Road, St. John's Wood, London, N.W.—*Catalogue of Flower, Vegetable, and Agricultural Seeds.*

TO CORRESPONDENTS.

*** We request that no one will write privately to any of the correspondents of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely to The Editors of the Journal of Horticulture, &c.*, 171, *Fleet Street, London, E.C.*

CHAMEROPS EXCELSA CULTURE (*J. S. G.*).—This Palm will undoubtedly succeed in a Wardian case with but little attention. But why put it in a case? In our opinion it is only taking up valuable space unnecessarily, because it will live and thrive admirably in any apartment of which the temperature does not fall lower than 38° or 40°, and few rooms are colder than this. We have had many species of Palms, Chamærops excelsa amongst them, in our rooms for three years or more, and they grow well, and are really charming objects for such situations. C. excelsa requires to be grown in about equal parts of loam and peat mould; the drainage should be good, as it enjoys copious waterings during summer. This, and sponging the leaves occasionally with warm water to remove dust and dirt, are all the attention required. It is a native of the Himalayas, attaining a height of about 30 feet.

MANETTI STOCK FOR FORCED ROSES (*T. Mayes*).—The Manetti stock is well adapted for the forcing of Roses, care being taken to bury the collar of the plant at least 2 inches below the junction of the scion and stock. A liberal treatment is required, and proper attention must be paid to remove all the dormant buds in the Manetti stock previous to potting, and to be careful not to let a sucker appear. Use good-sized pots, plunge and mulch in the summer, and well ripen the wood. Avoid worms, which are very liable to do damage when pots are plunged.

TRUFFLES (*W. J. W.*).—Write to Messrs. Webber, Central Avenue, Covent Garden Market, and ask for the information you need.

LIST OF ROSES (*T. Watson*).—Though your Roses, as per list sent, are not entitled to rank on the whole very high, yet with the exception perhaps of General Washington, which is too uncertain to trust to, we should not advise you to cast any away, but recommend you to procure a dozen more if you can find room for them, selecting them from the list of the thirty-six best, as by the return sent by Mr. Peach. Souvenir de Malmaison will take a long time to cover a wall 8 feet high and 4 feet wide, if ever it do so. We should recommend Gloire de Dijon. Your suggestion of planting Clematis Jackmanni alongside will do, if you train the Clematis up at once and make it cover the top part of the wall. Madame de Cambacères, good hardy Rose, rough petals; Lord Raglan, purplish red, too flat, occasionally good; Countess de Morny, fine bright pink, good; General Washington, very uncertain; Beauty of Waltham, good, cherry red; Grant des Batailles, very free-blooming; Anna de Diesbach, fine pink, too loose-petalled; Mrs. Bivers, blush white, shy grower; Empereur de Maroc, dark plum, small flower; Anna Alexieff fine garden Rose; Souvenir de Chas. Montault, uncertain, occasion-

ally good; Souvenir de la Reine d'Angleterre, rather coarse; Coupe d'Hébé, fine shape, pink, a summer Rose; Kate Hausburg, deep red, doubtful; Lord Clyde, in some soils very good; Rev. H. Dombrain, a Bourbon, uncertain, but sometimes good; Lord Macaulay, very fine, dark crimson, good; Madame Louise Carique, light rose, good.

Variegated Ivy (*J. S.*).—The Ivy you send is H. palmata, or so near to it that it is not worthy of introduction as a novelty. If you trace the wild forms of this beautiful plant in its native habitats, you will find a wide divergence in the sizes and forms of the leaves.

Pomegranate (*R. E. H.*).—It cannot be grafted on a Lemon stock.

Carrying Plans into Practice (*Ignoramus*).—A series of directions have been published in our columns.

Defective Flue-heating (*H. S. W.*).—To prevent your fire burning so furiously you will find that a damper fixed in the chimney will regulate your fire just as you wish, but if your flue is at all faulty the smoke will find its way into the house. Another remedy is to fix a door to your ashpit, the same as to your firehole, and by closing both you will prevent the rapid combustion by excluding the air. A far better plan will be to fix a sliding door to each opening, as fitted to boilers when hot-water is used for heating. Any horticultural ironmonger can supply one.—(*From a Correspondent, T. S. S.*)

Deodorising Sewage.—*A Constant Subscriber* has a manure pump to the sewage pit which throws the sewage water into a smaller tank from which it is used for the garden, and he asks how to deodorise this supply in the small tank before using it, with the best and cheapest deodoriser, and the quantity to be used. The earth of the garden will be an efficient and the cheapest deodoriser. If the sewage be pumped into the small tank daily, and enough earth added to make it into a very stiff mud, there will be little or no offensive smell.

Cyclamen persicum not Thriving (*S. P. S. X.*). — We are unable to account for the decay of the corms, unless by their having been too quickly dried-off. The forcing temperature to which they were subjected to flower them in a twelvemonth, and the planting out-doors in the following summer, may have acted injuriously on them. If you had given them a gentle bottom heat on potting, and kept them near the glass in a temperature of from 50° to 55°, we think they would have done better. From the leaves we should say your plants are suffering from cold and damp. Give more air, a position close to the glass, and a temperature of 45° to 50°. We consider the best summer treatment of Cyclamen persicum is to plant it out in a cold frame shaded from the mid-day sun, to keep the lights on constantly, but tilted back and front, and to repot in August. When the corms begin to grow remove them to a house with a temperature of 45° to 50°.

Stopping Young Pelargoniums (*A. R.*).—Do not stop the young plants a foot high, but let them go to flower. When that is past and the wood firm, cut them down to three or four eyes. You may, if you like, cut them back now to three or four eyes, in which case they will be more dwarf, and will not flower until late.

Heating Cucumber and Melon House (*D. J. E.*).—A flue for a small house is more economical than heating with hot-water pipes, though the latter is on the whole much better. We advise you to use a small saddle boiler and hot-water pipes. The bed should be 5 feet wide and heated with two rows of 3-inch pipes for bottom heat, and four rows of 4-inch pipes for top heat. A foot of rubble should be placed over the pipes, and on that a foot of good rich soil. We advise you to adopt the plan practised by Mr. Douglas, and described by him in the Journal for January 18th.

Transplanting Rhododendrons (*Subscriber*).—The best time to transplant Rhododendrons is during September and October, and if mild from the middle of February up to the second week of April. Last year we planted several hundreds in May, indeed the Rhododendron can be lifted with such good balls that they may be safely removed at any time of year, though the times named are preferable. *Twelve select Rhododendrons* are Blandyanum superbum, light crimson; Brilliant, crimson scarlet; Coriaceum, white; Marian, shaded pink; Paxtoni, rose; Ochroleucum, pale yellow, centre shading off to straw brown spots; and Vivicans, bright scarlet. These are of dwarf habit. The following are of excellent habit, but larger-growing:—Nero, rosy purple, finely spotted; Old Port, plum; Mrs. John Clutton, white; Alarm, white centre, deeply scarlet-edged; and Lady Dorothy Nevill, purple, spotted black.

Select Half-hardy Annuals (*B. B.*).—Of novelties Amaranthus salicifolius must take precedence. Ageratum Imperial Dwarf, Phlox Heynholdi and cardinalis, are three good novelties; Tagetes signata flore-pleno, Brachycome iberidifolia, dwarf striped French Marigold, Lobelia speciosa, Aster Victoria, vars., large-flowering Ten-week Stocks, Phlox Drummondi, vars., Schizanthus retusus, and Venidium calendulaceum.

Ficus elastica not Thriving (*Château Vallon*).—The leaf sent has every appearance of having been destroyed by some solution, and we think the plant is also suffering from cold and damp. Keep it drier at the root; indeed, give no more water in winter than will be sufficient to keep the leaves fresh. When growing copious supplies are required. If you could place the plants in a house with a moist growing temperature of from 50° to 55° at night until they make fresh growth and roots we think the foliage would become healthy.

Propagating Camellias (*Ignoramus*).—You must procure stocks of the single varieties, either by sowing the seeds or raising plants from cuttings of the ripened shoots inserted firmly in sand, in a close cold frame, shading for about a month, and then placing in a gentle hotbed. The plants from cuttings must be grown until they are strong enough to graft. This must be done in April, before the scions begin to grow, placing the worked plants in a mild sweet hotbed. Camellias are easily increased by inarching, elevating the stocks on pots or other contrivance to the height needed, but you must first secure the stocks. Keane's "In-door" and "Out-door Gardening" would suit you. They may be had by post from our office for 1*s.* 7½*d.* each.

Primula Seed—Azaleas after Flowering—Croton Leaves Green (*St. Honoré*).—Primula sinensis fimbriata alba, P. sinensis fimbriata rubra, P. sinensis fimbriata lilacina marginata, will give you white, red, and lilac. They may be had in separate colours from the principal seedsmen advertising in our columns, of whom we draw our supplies, and they are extra fine this year. Order Cineraria seed saved from a fine collection. The Azaleas from which you have removed the flowers should be placed in a house with a night temperature of 55° to 60°, and be syringed, and a moist atmosphere maintained until the growth is complete, and then they should have a more airy and cooler house. The Croton may have lost its leaves from an attack of thrips, or from being kept wet at the roots in a low temperature. Examine the drainage, repot if needed, afford the lightest position you have, do not overwater, and with sunny weather your plant will have the fresh growths well coloured. Crotons require light to colour well.

Vine Culture (*Ignoramus*).—In planting a vinery it is desirable to arrange for two permanent rods to each Vine. To obtain these we would train up at least three shoots, and when pruning the Vines in autumn we would select the best two, entirely removing the third. It is not usual to allow shoots to grow on the upright part of the stem before it reaches the rafters. You can rub off the buds with your fingers as they appear.

Selection of Vines (*H. Coe*).—You can grow all the Vines you name in a heated house with Black Hamburghs. Plant the Muscats at the warmest end of the house, but it is not desirable to grow them with Hamburghs.

Scale on Orchard House Trees (*An Old Subscriber*).—The small scale on your trees is very difficult to dislodge; we have had it on our own pot trees, and rather than risk the contamination of the others we have destroyed the trees. As soon as the leaves fall in autumn we would scrub the trees with a mat brush, using warm rain water in which soft soap has been dissolved.

Flower Garden Plan (*An Amateur*).—We like the arrangement. If 3 and 6 had white centres the whole would be improved. We think that 9, the centre, would be improved by Lobelia half-circle edgings instead of Cerastium.

Charcoal Ashes (*Curious*).—They are neither more nor less than the ashes of the wood from which the charcoal was made. They will not do as a substitute for lime rubbish in making a Vine border.

Killing Lichens on Fruit Trees (*Cheriton*).—Paint them over with a strong mixture of quicklime and water; or scrub them with a brine of salt and water.

Giant Tripoli Onion (*St. Edmund*).—Transplant as early in spring as the weather and state of the soil will permit. The ground should be dug 18 inches deep and well manured. We would not use the iron roller, as it is probably too heavy if of the kind used for gravel walks. A wooden roller is the best; if you have not one the ground may be beaten lightly with the back of the spade, if not naturally of a heavy nature. Plant 8 or 9 inches apart in rows a foot from each other, placing only the fibres below the surface. A dressing of pigeons' or fowls' dung sufficient to cover the surface will be an excellent manure. If used in a liquid form, an ounce to a gallon of water is sufficient.

Dry Earth Closets (*Inquirer*).—There can be no question that these answer well, if the dry earth is kept in stock ready for use. No perceptible taint is discovered. There is no other mode known to us by which such a quantity of the richest manure can be obtained without distressing our organs of smell. Carbolic acid will be a great help in neutralising the smell from water-closets, house sewage, &c., but more definite experience is still required, for the whole question of sewage is still to be thoroughly considered. Traps used in drains are in most cases too shallow to prevent the pent-up gases forcing their way through them. No trap should contain in such cases less than from 3½ to 4 inches in depth of water.

Salary (*Idem*).—We are quite unable to state what the salary should be of an overseer of an estate of from seven to eight thousand acres, though combining the offices of gardener, forester, &c. We have known places of eight hundred, nay, of eighty acres, requiring more management than such a large estate. It entirely depends on what is wanted, and what is done. We have known cases in which such work has been done by one man for £150 a-year, horse kept, &c., but it would have been true economy to have had three men with wages of from £90 to £100 each. We have known large estates superintended for very insufficient wages, and yet the superintendent got rich. We hope that for the credit, respectability, and true manliness of all concerned, work or service given will be directly paid for in wages without makings-up dependent on any left-handed or under-handed sources.

Boiler (*Camjee*).—We hardly understand the question. We prefer saddle boilers chiefly because they are simple, but we do not think there is anything to find fault with in any of the forms of boilers advertised in our pages. Another correspondent wishes to know whether cast-iron or wrought-iron boilers are best. Our experience is, that for all boilers of moderate size, cast iron is to be preferred, but for large boilers, say saddle-backs, from 5 feet in length, wrought iron is better. The larger the casting the greater is the difficulty of having it regular throughout.

Wintering Geraniums in a Spare Room—Forcing Asparagus Out of Doors—Trenching (*Amateur*).—The cause of the old plants of Geraniums shrivelling is want of moisture at the roots, or it may be the dry air of the room. We advise you not to give much water before March, but it is necessary to keep the stems fresh. On each side of the Asparagus bed you may now take out a good trench 18 inches or 2 feet deep, and 2 feet wide, fill it with hot dung to 18 inches above the level, and cover the bed with wooden shutters resting on the fermenting material. The shoots will be fit to cut in three weeks or a month. You must renew the fermenting material as the heat declines. It is not too late, nor is it ever too late, to trench or double-dig ground. Do not bring up too much of the bad soil, but loosen it, and for all root crops manure between the first and second layer of soil in the trench, whilst for most other crops it is desirable to give a dressing of well-rotted manure at the surface, and to point-in with a fork.

Draining a Garden (*C. S.*).—As there is no outlet for water at the proper level, your only plan will be to have a well as you propose, and that will be useless unless you have a pump to keep the water below the mouth of the drain conveying the water off the land; but as water is so much required during the summer in a garden, we should have the well, which will give the outlet for the drainage water, and if the water in the well rises level with the drain-pipes, or above them, make a reservoir, which may be a small pond puddled at the sides, and with a pump draw the water from the well, always keeping it below the drain outlet; in the reservoir it will be available for watering purposes. The well need not exceed 8 or 9 feet in depth, and about a yard in diameter; brick it round, and by having an indicator alongside of the pump you may tell exactly when the water should be pumped off. Three drains the whole length of the ground will be sufficient, and we should have them 5 feet from each side, and 15 feet apart, running lengthwise of the parallelogram, and brought to one main 6-inch pipe before reaching the well, though each drain may have its own outlet into the well. Three-inch pipes would be best, let them have a fall of 2 feet in the 100 yards. The depth of the drains should be 4 feet.

Forcing Vines after Removing the Surface Soil (*B. G., Subscriber*).—After removing the soil down to the roots and putting-in fresh, we do not see any objection to your starting the Vines in the course of two or three weeks. Cover the border with 18 inches or 2 feet thick of fermenting materials, so as to set the roots to work before the growth of the top commences. If you did not place heating material on the border, but left the soil to be

heated by the sun, the forcing would probably tend to weaken the Vines, in consequence of the growth of the top being in advance of the roots, which would in part be destroyed by the removal of the soil.

Covering for Frames (*R. H. F.*).—Shutters made of rye or wheat straw are the best, but not nearly so durable as those of wood, which are the best of all. They should be slightly raised above the frame so as to admit air, but if this be done the frame lights should first be covered with mats, and then with the wooden shutters. The space need not exceed an inch, and an ordinary frame may be put on close, as, from the glass being lower than the wood bars, a small space will be left between the shutters and the glass, which will be closed in severe weather by the mats.

Hollyhocks (*Inquirer*).—Your mode of treatment seems to us to be quite correct, and we do not know how we can assist you. Probably something is radically wrong with your soil or the site. Hollyhocks like an open situation exposed to the full sun, and require to have plenty of air, but to be sheltered from cutting winds by objects at such a distance that they will not shade nor affect the Hollyhocks. The ground should be a good rich loam, light rather than heavy, enriched with plenty of manure; it must be trenched, manured, and thrown up roughly in November, and turned over in frosty weather. Of course, it must be well drained. If the ground is heavy add sand or ashes to the soil. If it is in good order you may plant out with every confidence early in April. The plants should have protection from frost for a short time. Beyond staking, and supplying them liberally with liquid manure, we do not find they need any further care, only to reduce the shoots thrown-up to two, or at most three, of the strongest. *Twenty-four good sorts* are:—Brilliant, rosy scarlet; Conquest, scarlet crimson; George Johnston, rosy crimson; Lord Napier, scarlet crimson; Midnight, deep glossy maroon; Marvellous, deep orange buff; Sir John Sinclair, rosy salmon; Mrs. P. Bruce, light rosy peach; Joy, delicate flesh; Jewel, bright yellow; Mrs. F. H. Douglas, light rose; Alba superba; John McDonald, dark ruby crimson, Marion, purplish rose; James McIndoe, rosy crimson; Andrew Jamieson, deep rose; Sovereign, claret crimson; The Prince, deep buff; Walden Queen, delicate flesh, flushed with rosy carmine; R. T. Mackintosh, rosy crimson; John Gair, rosy peach; Her Majesty, white, slightly shaded; Fred. Chater, pale yellow; and Mrs. Downie, soft salmon rose.

Apple Tree Diseased (*W. H. Bennett*).—The disease on your Apple tree is caused by American blight (Aphis lanigera). We have found boiled oil an effectual remedy; we simply applied it to the affected parts with a small brush. We found the insect appear to a limited extent six months afterwards, and another application effectually destroyed it.

Verge-cutter (*J. Lumley*).—In our last volume, page 380, you will see a drawing of one invented by Mr. McLachlan. What yours may be we do not know, but we think your only course to gain anything by it will be to offer it to some of the large implement-makers.

Destroying Worms in Lawns (*J. H.*).—It is true that corrosive sublimate, about half an ounce to fifteen gallons of water, will compel worms to come to the surface, but any fowls that ate them would be poisoned. Lime water made by thoroughly mixing a peck of freshly-made quicklime with forty gallons of water, and when quite clear applying it through a rosed watering-pot, will be as effectual.

Names of Plants (*J. Bell*).—Odontoglossum Cervantesii, *Lindl.*, a very pretty species, very similar to O. membranaceum, *Lindl.* (*Robert*).—The Christmas Rose, Helleborus niger. (*J. T. L.*).—Eupatorium glabratum, native of Mexico; a plant we have seen cultivated in gardens under the erroneous name of Ageratum glaucum. (*A Market Gardener*).—1, Pteris longifolia; 2, Asplenium flaccidum; 3, Litobrochia respertilionis. (*A Constant Reader*).—1, Asplenium Trichomanes; 2, Pteris longifolia; 3, Blechnum polypodioides; 4, Cereus flagelliformis; 5, Pellia epiphylla, in all probability, or perhaps P. calycina, one of the Liverworts. We recommend you to adopt your idea of damping your Ferns overhead, modifying it, however, according as the weather is bright or cloudy. The Brunea might become so affected by being in a current of dry heated air, or by defective watering, or by the soil becoming foul, either from the presence of earth worms or defective drainage. (*Paquanil*).—1, Probably Aspidistra lurida variegata; 2, One of the smaller-crested varieties of the Lady Fern (Athyrium Filix-fœmina); 3, Not in good condition, probably Cystopteris fragilis; 4, Nephrodium glabellum; 5, Young state of Polystichum angulare; 6, Asplenium marinum. (*J. G.*).—1, Asplenium flabelliformis; 2, Polypodium vaccinioides; 3, Probably Leucostegia immersa; 4, Asplenium Veitchianum (otherwise known as Bellangeri); 5, Pteris pellucida; 6, In very bad condition when received, probably Hypolepis repens. (*Quercus, Cork*).—Elæagnus arborea variegatus.

POULTRY, BEE AND PIGEON CHRONICLE.

FOWLS FOR PROFIT, AND AS A MEANS OF SUBSISTENCE.—No. 1.

The rearing and management of poultry as a source of income is, generally speaking, very little understood. In putting these papers before the public I shall endeavour, as briefly and plainly as possible, to show every poultry-keeper how his or her poultry-yard can be converted into a valuable source of income, instead of being, as is usually the case, an ill-arranged non-paying business. The invariable answer I receive to any question I propound to the small farmer or cottager with regard to the economy of keeping poultry, is, "Oh, sir, they don't pay." Now I have enjoyed a life-long experience in fowl-keeping, and know that they not only do pay, but that to those who economically and properly manage them they will afford a valuable means of subsistence. This may appear to some a startling assertion, nor do we wonder that it is so when we see daily such ill-bred pigmy specimens, utterly unworthy of the name of poultry, but which are annually bred often to the positive loss of the owner. I will state plainly what anyone may easily make by poultry, without in any way teaching extravagant views. I have calculated the profits in moderation, and the expenses are quite as large as they will ever amount to if strict attention be given to the birds and to their requirements; and what line of business can be expected to return a profit unless attended to?

Selection of Breed when Unconfined.—No cross-bred fowl will produce as many eggs as one which is pure bred. Now as the largest number of eggs that a hen is capable of producing is required, and that the largest and finest-fleshed fowls and chickens must be obtained to make a poultry-yard pay in perfection—my advice, founded upon reason and experience, is that two breeds must be kept. As I am regarding the domestic fowl solely as a source of profit, the greatest importance must be attached to obtaining the proper breed, as there are many breeds which will not pay as egg-producers, and others, on the contrary, which if reared for the table or for market purposes would be a positive loss.

Proceeding upon the assumption that the fowls have the advantage of a good run, say a field or farmyard to roam in, I should recommend the Black Hamburgh fowl to be kept as an egg-producer; it is truly called an everlasting layer, and will, without doubt, produce fully twice as many eggs of ordinary size that any other known breed will do. It is a noble-looking bird, and brilliant black with a metallic lustre. This breed is non-sitting, therefore we must keep another breed for the production of chickens; and I would strongly recommend the Brahma Pootra; the chickens rapidly put on flesh, and grow to a very large size, being fit for the table at the age of three months. The hens are good sitters and careful mothers. They will become broody in the winter, if attention is paid to their feeding and they are warmly housed; but should this not always happen at the time wished, a hen may be persuaded to sit at any time of the year. The Brahma chicks being naturally strongly constituted, will thrive well at any season. I would not advise a sitting of the Hamburgh eggs to be made before March.

It has often being urged as an obstacle against keeping two distinct breeds of fowls that there is a difficulty in keeping them separate. It is of course imperative that this should be done, for if the cock of either breed were to obtain five minutes' freedom in the poultry-yard or range this mischance would spoil the breed for twelve months. This difficulty may be easily obviated by keeping the cock always confined, which is a very simple matter, as will be seen in a subsequent paper. The age of the cock should not be less than twelve months, nor should he be kept after he has attained his third year. Six or seven hens are sufficient for one cock, but where a number are kept, say twenty-five hens, three cocks will be sufficient.

As profit is our object, the pullets hatched in the spring must not be kept after the July or August twelvemonth, as they will then moult and become for some time unprofitable. The cockerels of each sitting, no matter when hatched, must be sent to market or used for the table when from three to four months old. If kept longer than this they must remain until full grown, as they always fall off in condition after the period of chickenhood is terminated. At this age they ought to weigh not less than 5 lbs. each, and I have known them to be heavier. The hens may be kept for sitting until three years old; they are better sitters, generally speaking, than pullets, but after that age they often become cross-tempered, and should be replaced by younger birds. I have heard of capons having been trained to rear young chickens, so that the hen may recover her vigour and begin to lay again. Of this I have not had any experience; and as the Brahma fowl will generally lay again in a few weeks, and at the same time take charge of her brood, when this breed is kept it is unnecessary to deprive the mother of her own progeny.—Vincent Fraser.

A PLEA FOR JUDGES AT POULTRY SHOWS.

I believe every exhibitor of poultry will endorse the remarks made by "D.," of Deal, on poultry-judging. I have been an exhibitor and breeder of poultry for the last twelve years, and never have I heard such complaints—loud and long—from men who do not generally grumble, as during the season just past. It is essential, I fully believe, to remedy this state of things, and that judges must have one entire day to make their awards. More judges must be employed; and at the largest shows, and where the funds will permit, as at Birmingham, the Crystal Palace, Bristol, &c., amateur breeders of the different varieties should be solicited, and would be glad, I doubt not, to give

their services to the judges to revise and overlook their awards; and I believe then we should not have the egregious mistakes we now have, nor the caprices in judgment. Uniformity in the awards would be the rule and not the exception. Birds that are one year considered the perfection of colour, style, size, and everything else, are the next year totally discarded, and the award given to directly opposite. What is more puzzling and disheartening to an exhibitor and—A BREEDER?

AMATEURS AND DEALERS EXHIBITING IN THE SAME CLASSES.

I HAD hoped that some abler pen than mine would have backed up Mr. Ashworth's remarks a week or two since on the above subject (page 455). I know of no other matter in connection with poultry exhibitions more worthy of consideration than this. The present arrangement of classing the amateur and dealer together is to my mind most unfair and unsatisfactory. The amateur keeps his few poultry or Pigeons as a pastime or hobby, often to pass away a pleasant hour after returning from his business; in fact, he merely keeps them for the love of them and not for profit. Still, he likes to exhibit them occasionally to see whether his are as good as his neighbour's over the wall. The dealer, on the other hand, bestows most of his time and all his ingenuity on his birds; in fact, it is his trade and his sole occupation, and it is but rarely that his birds return from an exhibition without bringing the lion's share of the highest honours with them—not that they do not deserve them; but what chance has the amateur against a man who makes exhibition his trade, often taking dozens of prizes with the same birds, and putting them in the catalogue at a price prohibiting their purchase except rarely? My impression is that the committees of the various societies ought to place the dealers in a class by themselves.

I cannot endorse Mr. Ashworth's opinion that the Selling class would be the place for them, as in most instances the price of the birds in this class is restricted to a mere nominal figure, far below the value of a first-class bird. This would not encourage the dealer to show his best birds. What I would advise would be to place the dealers in a class by themselves on the same footing as the amateur, and let it be dealer against dealer, amateur against amateur. I have no doubt but that the class would pay any and every committee that adopted the plan, and would be far more satisfactory to all parties concerned than the present system.—AMATEUR.

HOW SHOULD FOWLS BE FED AT SHOWS?

I AM very glad indeed to find this matter taken up by "WINNER OF FOUR CUPS." I have long been of opinion that the great havoc made amongst birds every year after returning from shows, has been caused by the absence of digesting materials afforded them at those shows. I have had many complaints from breeders in England this year that their birds returned from exhibitions diseased.

Now, I believe there was no disease in the matter, for none would think of sending diseased birds to such shows as the Crystal Palace and Birmingham. One gentleman told me it was black roup that was the matter with my Crystal Palace cup cock. I will give you a description of how it affected my bird and how I treated him, and let your readers judge whether it was black roup or not—and breeders in England say their birds were exactly in the same case. When my bird returned from the Crystal Palace Exhibition I gave him bread soaked in ale, but as he did not seem to relish it, I offered him his usual food (oatmeal dough); of this he took a moderate meal. When I took him out of the basket there was nothing whatever in his crop, or first stomach. The above food, though not half a meal, remained in his crop next day, and I gave him a dose of castor oil but with no effect, followed by other three, and one of salts, but all to the same purpose; indigestion had fairly set in, and the food refused to enter the second stomach. The bird was in this state for about eight days, and now his comb was as black as if painted with black paint. As a last resource I gave an emetic, and took back the last particle of the food. I by this time came to the conclusion that the second stomach was glutted-up with leaven or some other soft food, and, nothing to grind it, there it would lie. I then took fresh butter and kneaded it with sand and small stones, and put it down his throat, and as soon as this got into the second stomach, which was about twelve hours, the bird began to look about him and gradually recovered; in two days afterwards he could eat anything and everything. He recovered and became perfectly well again, but minus his beautiful comb, and, of course, for ever useless for exhibition.

I do not know what food is given at the Crystal Palace Exhibition, but if the fowls are not well attended to with sand, small stones, and lime (so used), especially the last two, it is quite sufficient to account for all the disease that has been amongst the birds returned from the Crystal Palace and Birmingham Shows. If birds are confined for twenty-four hours, even allowing them sand, then give them full liberty, and the first thing they will do is to rush to the heap of lime-rubbish and pick up good large balls of it. If they do this after twenty-four hours of confinement, how much more after eight days' confinement—four days going and returning per rail, and four in exhibition.

I believe the journey has very little to do with the disease. Strong-constitutioned birds ought to be able to endure the fatigue of travelling without the slightest fear of fatal consequences, for I have sent birds on approval to Brentwood (more than six hundred miles), and other places in England, and had them returned the same distance with not the slightest bad effect, because not long confined from their natural food. Yet when returned they refused to look at food though offered, but went about picking up stones and lime. I think green food, cabbages or Swedish turnip leaves (the latter they prefer), should be cut small and given freely at shows. The cockerel returned me from the Birmingham Show was very nearly as bad as that from the Crystal Palace, and was so ill that I could not send him to Edinburgh, and he could not make up condition in time for Aberdeen, and had to be content with an inferior position.—JAMES CLARK.

LOCAL JUDGES.

IN "our Journal" I have occasionally seen complaints against the mismanagement of poultry shows, and I consider the most glaring defect, and the one most likely to bring our shows into disrepute, is the Judges engaged.

There would, perhaps, be less cause for complaint if these Judges were men of enlarged experience; but often I find they have neither kept nor studied the fowls they pretend to judge; and whether the prizes happen to be correctly awarded or not, still there is among exhibitors much dissatisfaction, and even suspicion of unfair play. In a recent number of the Journal the Committee of a show give the names of four Judges from the town in which the show was held, besides several from the neighbourhood. "Would you not be astonished to learn" that there were at least other three local Judges for poultry whose names the Committee preferred to exclude from their catalogue? As an instance of the judging, I ought to mention that in a class for Red Game, the second-prize pen contained a cock with a twisted breast, and the legs of the pair were a very bad match. The third-prize pen contained a cock almost in the last stage of disease; and this was not the only diseased bird that took a prize and was allowed to remain in the pen to the end of the show. The Committee plead economy as their excuse; they may find next year that it was false economy.—PAISLEY.

WARNING TO EXHIBITORS AND RAILWAY COMPANIES.

To the late Barrhead Show I sent a pen of Duckwing Game and a pen of Black Red Game; both pens were awarded first prizes. The Duckwings had taken a first prize, and the Black Reds twice a first prize, and timepieces in both cases as extra prizes, only a few weeks previously at shows in the same district. The Barrhead Show happened to take place on a Saturday, and I asked the Secretary to favour me by returning my birds on the same evening, not wishing them to remain over Sunday; this was accordingly done. I waited their arrival at Edinburgh, and while at the station opened the basket to see that all was right before driving them home, and to my horror found all the four birds nearly dead. One died in a few minutes, the others soon afterwards—only three hours after leaving Barrhead Show. I at once concluded they had been poisoned, or had received foul play, and at once communicated with the Secretary and others connected with the Show to try to find out the cowardly rascal guilty of such an act: but all say the birds were in good health and spirits while at the

Show, and that the party who put them in the hampers is willing to give his oath that they were all right then. I have had one of the birds subjected to analysis, and enclose herewith a copy of the report. I merely write this as a warning to exhibitors sending birds to shows, as it seems that poultry committees are not responsible for cases of this kind, and the loss falls all upon the exhibitor, such being my experience. I shall only say in conclusion that if such cowardly acts as this were to occur often poultry shows would soon be a thing of the past. —D. Harley, *Rose Bank, Bonnington Road, Edinburgh.*

"Chemical Laboratory, Leith, 12th Dec., 1871.

"Report of analysis of contents of gizzard of game cock.

"On Tuesday the 28th of November last Thomas Bell left with me at my laboratory the body of a Game cock belonging to Mr. D. Harley. I have carefully, in accordance with instructions received from Mr. Harley, examined and analysed the contents of gizzard, &c., and have now to report that the results of my experiments are conclusive in showing arsenic to have been present in considerable quantity.—(Signed) J. Falconer King."

[We recommend that this case be brought specially to the notice of the directors of railway companies. If it could be proved that the birds had been poisoned whilst in the possession of their officials the companies would be liable for the loss.—Eds.]

DUBLIN POULTRY AND PIGEON SHOW.

Without dispute the Dublin Show has far surpassed any similar meeting yet held in Ireland—in fact, it must rank among the greatest poultry exhibitions in the kingdom. Carried out by a Committee, several of whom are among the most noted of our poultry amateurs, this Show was exceedingly good in its general arrangements, and the care bestowed on the specimens could not be excelled. The Exhibition Palace, in which the meeting took place, cannot be surpassed by any building for the purposes of a poultry show in regard to the equal diffusion of light, the ventilation, and the comfort of the visitors. Its being close to Dublin is also a feature of no little importance in securing a large attendance of all classes. Luckily the weather was propitious, and on the first day his Excellency the Lord Lieutenant, the Countess Spencer, Lady Clifton, and suite attended the meeting, and expressed themselves highly gratified. The public support on every day the Show remained open was most satisfactory, for although the avenues were wide and spacious, a glance from any of the galleries showed how abundantly filled with visitors was every department of the Show.

On entering, the Grey *Dorking* class first met the eye, and certainly a better display could not be wished for. Mr. John Martin, of Claines, Worcester, took precedence with his well-known Rose-combed pen, on this occasion much improved in condition as compared with that in which they were seen when exhibited at Bristol. He also took the third prize with a very good pen of single-combed birds, the hen in the latter pen being, however, somewhat small. The Hon. John Massy, who was second, had a very evenly-matched pair. In the class for Silver-Grey Dorkings we were quite disappointed, most of these birds being both very irregular in colour and markings. It is singular that though liberal prizes were offered for White Dorkings, only one pen was shown; that, however, was really good. In connection with the classes for *Cochins*, the names of Messrs. Lacy, Brierley, and Sichel are sufficient guarantee for first-rate quality in the respective varieties. Dark *Brahmas* were good, but for the most part quite overshown, Mr. Ansdell's second-prize pen especially so, whilst the Hon. Miss Douglas Pennant's third-prize pen was in admirable condition. Light Brahmas, though good, seem not to make any very rapid advance towards perfection, and therefore, with the exception of the prize pens, but little can be said in their favour. All three varieties of *Freneh* fowls were unusually good, and the La Flèche class was better than even at the largest of our English exhibitions. Of the *Spanish* class it is scarcely possible to speak more highly than it deserved. The Judges were so much impressed on this point as to suggest to the Committee the expediency of giving an additional prize, a request at once acceded to. After a long inspection the principal prize was awarded to Mr. Edward Jackson, of Wolverhampton, the remaining two prizes to the Hon. Miss Pennant, and certainly greater painstaking on the part of the Judges could not be desired, for a most unenviable task it must have been to decide among three pens closely on a par as regards perfection. It seemed to be a very general impression among visitors that had a different selection been made as to the four birds comprised in Miss Pennant's two pens, an easy triumph as regards the first position would have been secured in the Spanish class, whilst the additional third prize would have been even then not less desirable. A large entry of first-class *Hamburghs* by Mr. Beldon was a sufficient guarantee of the excellence of the prize pens, and we were glad to see some very superior specimens on view by other exhibitors. *Polands* were never shown more numerously nor so good, the Black White-crested class being extraordinarily perfect throughout. We believe this portion of the Show was the most attractive in the whole Exhibition. Of *Game* fowls there was a good show. Mr. Brierley, with the best four pens of English fowls of the day, managed to secure the principal prizes. Third came a pen that would be of no mean importance at most meetings. Malays, Black Hamburghs, and Scotch Greys secured prizes in the order named in the *Variety* class. This class was remarkable for the great variety of breeds on view, also for the perfection of most of them. Game *Bantams* were, almost without exception, good, but the majority were evidently suffering from long-continued exhibition. The Variety Bantam class was excellent, and an object of general attraction; Pekin and Black Bantams were the winners. Many Sebrights were also entered, but fell far short of what they were as exhibited in former years. *Geese* and *Turkeys* were examples of perfection in breeding, and included some of the finest hens for stock purposes we have seen for years. A numerous entry of fancy Waterfowl added much to the interest of the Show, Mandarins, the Carolinas, Kasarka Ducks, Whistling Ducks, Bahamas, and several other varieties being included in this most popular class.

The extraordinarily fine weather during the Dublin Show doubtless exercised a great influence on the attendance of visitors, which far surpassed the most sanguine expectations of the Acting Committee. Now that the Dublin Show is fairly launched upon popular favour, its continued and increased success may be depended upon.

PIGEONS.

(From a Correspondent.)

In Blue-pied Ponter cocks there were thirteen entries. Mr. Gresham's bird should have been in the front, and the highly commended bird of Mr. Horner second. Of Black-pied the cup bird well deserved his place. The second prize went to a grand bird though wanting in colour. Of Red-pied cocks there were nine entries, and in each award the prizes were well earned. Of Yellow cocks there were only two entries. For White the first prize went to a grand bird, Mr. Gresham's bird being neater and narrow in girth, though wanting in crop. Had this bird been trained to show himself he would have been difficult to beat. In this class were thirteen entries. In the class for any other colour, a wonderful Mealy bird carried off the first prize. The second and third were well held. Blue-pied hens were a grand class of eight entries. The cup bird was closely pressed by admirable birds. Black-pied hens were a good class. The colour and markings of each specimen were above the average, and the awards well made. The first prize went to a faultless bird. In Red-pied hens the first-prize bird was bad in colour, good in size and limb. The second and third were fine in colour but too small. Mr. Horner's bird should have been in the prize list. There were five entries. Of Yellow-pied hens there were only three entries, and the honours were well held. White hens were a very good class of ten entries. The principal prizes went to birds of more than usual merit. Hens of any other colour were a poor class.

Of Carrier cocks there was a grand display, consisting of eleven pens. A bird of Mr. Horner's should have been in the list. Mr. Ord's bird should have been placed forward. Of Black Carrier hens there were three entries, the cup going to a grand bird good in all points. In Dun Carrier cocks the cup went to a bird of great merit, closely run by Mr. Horner and Mr. Whealand. Of hens there were seven entries. In Blue Carrier cocks the second-prize bird should have been first. This was a poor class. The Blue hens were better. This colour requires to be cultivated. The class for the best pair of Black Carriers of 1871 formed a grand display, and the positions were well maintained. In the class for the best pair of any other colour there were five entries, and the cup birds were worthy of their position. Mr. Hodgkinson's birds were good.

Almond Tumblers were a fair lot. The cup and third-prize birds were well placed. In the class for Tumblers of any other colour Yellow Agates were first, Black Beards second, and Red Tumblers third. A good pair of Mottles were left out for reasons best known to the Judges.

Black Barbs formed a wonderful class of nine entries. Here the Manchester birds had to take the third place. Mr. W. B Van Haansbergen's birds ought to have been forward; they are a grand pair of warriors. In Barbs of 1871 there were nine entries, Mr. Montgomery again winning. Mr. Whealand's and Mr. Wallace's birds were deserving of their positions.

In the class for Red or Yellow Jacobins there was a most evident miscarriage of judgment, the cup going to a pair of Yellows unevenly matched in colour, with white throats. Though they are the Scotch fancy English fanciers would discountenance them. Mr. Thompson's birds, as Yellows, were far preferable. The second-prize were Yellows of little merit; the third-prize pair were Reds of doubtful sex. Mr. Waitt's best birds, left out altogether, ought to have been in the prize list. This was the largest class in the Pigeon varieties, and some wonderful spe-

cimens were sent for competition. There were sixteen entries. Of Jacobins any other colour there were ten entries ; nine pairs were Blacks, one pair Whites. Mr. Waitt's Blacks were first-class in all points, and their line of marking distinct. These were unnoticed, one of the birds having had a few feathers abstracted from over the eye. The first-prize cock bird was not decided in chain, but good in other respects. Third came a neat pair, small, and well up to the average. The second-prize birds were good in colour and small, but badly matched. An exquisite class.

Fantails were good. There were nine pens. The first prize went to small birds, bad in tails, but possessed of that fine tremulous motion so much regarded by northern fanciers. They were in bad feather. The second-prize birds were far better in all respects. The third prize went to Blues, good in all points. Mr. Martin's two grand pairs were passed over.

Of Nuns the first-prize birds were good, but Mr. Watts's birds were preferable, being more even in the flights, and well saddled and cut. The third-prize were bad Yellows, wanting in hoods.

Of Black Trumpeters there were some extraordinary specimens. The cup, first, and second were an easy victory. In the class for Trumpeters, any other colour, Mr. Horner's champion birds were to the front, with a wonderfully fine pair second. Two better classes of Trumpeters were never before seen.

In Turbits Blues were first and second, and Yellows third. Mr. P. H. Jones's Reds should have been first, with Mr. Fielding's Reds and Mr. Horner's Blacks to follow.

Foreign Owls were a good class, the Rochdale birds enjoying their usual reputation, closely pursued by a grand pair of Blues, which were third. In English Owls bad Blues with white rumps were first. Blues were second. Third came semi-powdered Blues. Mr. P. H. Jones and Mr. Kemp ought to have been in the prize list.

For Magpies the first prize went to a pair of Blacks, the second to Reds of grand colour, and deserving of first honours, the third to fair Yellows.

In Dragoons, Blues and Yellows were first and extra third. The second-prize Yellows were good. Those which took the third prize appeared too heavy in eye and wattle for the Birmingham standard. There were eleven entries.

Of Antwerps there were seven pairs. A poor class.

In the "Any other variety" class good Red Swallows were first, Black Priests second, and White Tumblers third.

In the Selling class, Fantails, Barbs, and Black Turbits took the prizes. A good hen Barb in a highly commended pen was at once claimed, and a pair of Reds found a ready purchaser.

The cup for the best collection of four pairs of Pigeons, exclusive of Pouters, Carriers, and Tumblers, was taken with Black Turbits, White Jacobins, White Fantails, and Mottled Trumpeters ; the second prize with Black Trumpeters, Black Barbs, Red Jacobins, and White Fantails ; the third with Black Jacobins, Black Barbs, Yellow Turbits, and White Fantails.

KENDAL POULTRY SHOW.

This Show has long been noted for the liberal support it receives from the surrounding district, and embraces specimens from almost every breeder of note in the kingdom. A very commodious mill affords ample room for the Exhibition, and as a rule there is a very satisfactory attendance of sightseers.

The *Game* fowls as classes have rarely been excelled, though a somewhat large entry of Mr. Charles Brierley's best birds monopolised the principal prizes in this division of the Show. It is rare that there is so perfect and even an entry of *Hamburghs* at any show as that made at Kendal. *Dorkings* formed heavy and very good classes, and the prizes were widely distributed. *Cochins* were mostly from our principal yards, and embraced almost all the successful pens of the season. Want of condition in many instances was deplorably manifest, from the specimens having passed of late more of their time on the railway than the hen-roost. The display of Black *Spanish* fowls was good ; and the same remark is equally deserved by the Dark *Brahmas*, but the Light Brahma entry was very limited indeed. A very heavy Selling class brought forward an excellent entry, and consequently proved a profitable feature of the Show, a considerable number of pens changing owners. The show of *Geese*, *Turkeys*, and *Ducks* was large, and in most varieties very good.

There was a grand display of *Pigeons*—in fact, one of the best local shows seen for some years past. Antwerps and Carriers were especially worthy of favourable mention; nor were the Owls, Barbs, and Tumblers less deserving. The Pigeons were arranged sadly too high by many feet to be properly seen by those desirous of close inspection.

There was a good attendance of visitors, and the management of the poultry was excellent. The prize list was given at page 68.

The Canary a Mocking Bird.—Noticing in your Journal of January 18th the account of a Canary which learnt an air from a hand-organ, it may interest some of your readers if I mention another instance of the Canary's aptitude for acquiring notes dissimilar to its own. I had a Belgian bird with a song of rare excellence, which he preserved for two seasons. At the same time I had several Avadevats, which, tiny as they are, have a lovely song, tiny like themselves, but most perfect in sweetness. To my sorrow the third season my Canary quite lost his song, although in perfect health. One day, to my surprise, as I sat in a room adjoining that where the birds were, I heard the Avadevats' song most perfect, but louder than possible for the minute singer, and this explained the Canary's loss of song. He had been studying the notes of his small companions, and delighted with his success with the song of one Avadevat, it was most amusing to hear him practising the variations in the notes of the others, which he also accomplished. I was at last obliged to separate them, as after giving all his attention to acquire the foreign song, he proceeded to blend it with his own, thus spoiling both.—R. M., *Lymington*.

BARROW POULTRY SHOW.

This was held on January 26th and 27th. The following awards were made :—

Game.—*Cock.*—1 and 2, C. W. Brierley, Middleton. 3, W. Boyes, Beverley. *hc*, R. B. Hudson, Ulverston; J. Forsyth, Wolverhampton; G. Fletcher, Didsbury. *Cockerel.*—Cup and 2, C. W. Brierley. *hc*, J. Bowness, Newchurch. *c*, J. Mashiter, Ulverston. *Pullet.*—1, W. Boulton, Dalton-in-Furness. 2, C. W. Brierley. *hc*, T. Mason, Green Ayre; C. W. Brierley; W. R. Ormandy, Barrow; W. Bearpark; J. Bowness. *c*, G. C. Wilson.

Game (Black-breasted and other Reds).—Cup and 2, C. W. Brierley. *hc*, W. Boyes; T. Mason; W. Boulton; J. W. Brockbank, Kirksanton; J. Bowness; J. Brough. *Duckwings and other Greys and Blues.*—1, C. W. Brierley. 2, W. Boyes. *c*, L. Casson, Ulverston.

Cochin-China (Cinnamon and Buff).—1, G. Fletcher. 2, Mrs. Wilkin, Bootle. *hc*, E. Fearon, Whitehaven; C. Sidgwick. *White.*—1, J. Sichel. 2, J. & T. Weeks, Bootle. *hc*, E. Fearon. *Cock.*—Cup, J. Sichel

Brahma Pootra.—1, T. F. Anadell. 2, Dr. Holmes, Whitecotes, Chesterfield. *hc*, J. W. Brockbank.

Hamburghs (Golden-spangled).—Cup and 2, J. Buckley, Taunton, Ashton-under-Lyne. *Silver-spangled.*—1, G. Mitchell, Keighley. 2, Ashton & Booth, Mottram.

Game Bantams.—*Cock.*—1, R. Tyson, Barrow. 2, T. Sharples, Rawtenstall. *hc*, T. Barker, Burnley; J. W. Morris. *c*, G. Maples, jun., Wavertree. *Any other Variety.*—1, J. W. Brockbank. 2 and *hc*, Bellingham & Gill, Burnley. *c*, A. Ainslie, Ulverston.

Bantams (Black or Brown Reds).—1, J. W. Morris. 2, T. Sharples. *hc*, T. Barker; G. Maples, jun.; J. Mashiter.

Bantams (Any other Variety except Game).—1, M. Leno. 2, W. H. Robinson, Long Lee, Keighley. *hc*, R. & H. Ashton, Mottram. *c*, R. Gladstone, jun. Broad Green, Liverpool; T. Lumb, Rochdale.

Ducks (Rouen).—1, J. White, Whitley, Netherton. 2, J. Banks, Kendal. *hc*, H. B. Smith, Broughton, Preston; G. Porter. *East Indian.*—1 and 2, G. S. Sainsbury, Devizes. *hc* and *c*, S. Burn, Whitby. *Any other Variety.*—1, C. W. Brierley. 2, H. B. Smith. *hc*, M. Leno (3); H. B. Smith

Any other Variety.—1, Mrs. J. Cross, Appleby Vicarage, Brigg. 2, W. Hill, Heaton Moor, Stockport. *hc*, Mrs. Wilkin.

Selling Class (Poultry or Pigeons).—1, T. Thompson, Lancaster (Black Hamburghs). 2, J. Nicholson, jun., Carlisle (Hamburghs). 3, R. B. Hudson. 4, J. Mashiter (White Cochin-). *hc*, J. Gelderd, Kendal (Wild Ducks); J. H. Wilson, St. Bees ; J. Mashiter (Game); W. Grice, Bootle.

PIGEONS.

Carriers.—1, E. Horner, Harewood, Leeds. 2, E. C. Stretch, Ormskirk. *hc*, R. Lomas, Rampside; J. & W. Towerson, Egremont; H. Yardley, Birmingham.

Pouters.—1 and 2, E. Horner. *hc*, H. Yardley.

Tumblers.—1, J. & W. Towerson. 2, E. Horner. *hc*, H. Yardley.

Jacobins.—1, E. Horner. 2, F. Waitt, King's Heath, Birmingham. *hc*, J. and W. Towerson; H. Yardley

Antwerps.—1 and 2, C. F. Copeman, Birmingham. *hc*, H. Yardley.

Barbs.—1, H. Yardley. 2, W. Jackson, Bolton-le-Sands. *hc*, E. Horner.

Turbits.—1, E. Horner. 2, H. Yardley. *hc*, J. & W. Towerson.

Owls.—1, E. Horner. 2, J. & W. Towerson. *hc*, W. Lumb.

Fantails.—1, J. F. Loversidge, Newark. 2, E. Horner. *hc*, T. Imrie, Ayr; H. Yardley; J. W. Edge, Erdington.

Dragoons.—1 and 2, F. Graham, Birkenhead. *hc*, W. Hill.

Trumpeters.—1, J. & W. Towerson. 2 and *hc*, E. Horner.

Nuns.—1 and *hc*, J. Fisher, Barrow. 2, H. Yardley.

Any other Variety.—1, J. & W. Towerson. 2, H. Yardley. *hc*, T. Imrie; E. Horner.

CANARIES.

Belgian (Yellow).—1, J. Wood, Barrow. 2, J. N. Harrison, Belpar. *Buff.*—1, J. Wood. 2, W. Jones, Ulverston.

Mule.—1, R. Hawman, Middlesbrough. 2, J. Goode, Leicester. *hc*, J. N. Harrison; Stephens & Leek, Middlesbrough.

Piebald (Yellow or Buff).—1, R. Hawman. 2, J. N. Harrison. *hc*, Stephens and Leek; J. Clemiuson, Darlington.

Lizard (Gold or Silver-spangled).—1, J. N. Harrison. 2 and *hc*, J. Taylor, Middlesbrough.

Common Yellow.—1, W. Watson, jun. 2, J Hill. *hc*, Stephens & Leek.

Goldfinch.—1 and *hc*, J. N. Harrison. 2, J. Goode.

Rabbits (Tame).—1 and 2, T. E. Terry, Tong. *hc*, T. E. Terry; A. L. Peace, Thorne ; J. H. Wilson.

Judges.—*Poultry :* Mr. R. Teebay, Fulwood, Preston. *Pigeons and Canaries :* Mr. J. Douglas, Clumber, Worksop.

LOWESTOFT POULTRY SHOW.

The fifth annual Show was held in the Town Hall, Lowestoft, on the 24th and 25th of January. The building, which is small but handsome, was filled to repletion, and many entries which were made late had to be returned, owing to want of room. The pens were of a most substantial kind, formed on three sides of wood and the front of rod iron. The sliding doors admitted of easy access for the handling of the specimens—a point not always

sufficiently attended to. Each pen was scraped out and re-sanded every morning, and perches provided for the night. The regulations were very complete, and carried out with the greatest precision. The Honorary Secretary and the principal members of the Committee were in constant attendance, and the financial results of the Show were very satisfactory.

The first class for poultry was *Game;* the cup-winners were Brown Reds, and the second prize went to Duckwings. The former were a very even pen, and the second contained a most perfect pullet, but the cockerel had lost a sickle feather. *Dorkings* were a fair class. The cup cock was a large and perfect bird, but the hen was not so good as the second-prize one, which was, however, shown with a cock which in colour partook greatly of the points of a Silver-Grey. In *Spanish* the cup went to a pen of chickens, the cockerel being a well-developed bird and the pullet extremely fine, although the hen in the second-prize pen was far heavier in face and drop. The winning *Cochins* were Buff. Those in the cup pen of Lady Gwyder were very true to colour and very large, the hen being a perfect picture. The same lady won the cup for *Brahmas* with a grand pen composed of a cockerel and hen, the latter exquisite in marking, the lacing working well up to the throat. The competition in this class was keen, there was not a pen that did not contain one or more good birds. There were four classes for *Hamburghs,* and the cup was won by an excellent pen of Golden-spangled, in which class the Hon. Secretary showed several excellent pens, but not for competition. In Golden-pencilled there was but one really good pen, the pullet in which was most perfectly pencilled. Silver-pencils were a failure both in numbers and quality, but the two winning pens of Silver-spangled were of high quality. The first-prize cock was too white in face for a young bird. In the *Variety* class, Silver Polands were first and White-crested Blacks second. Sultans, Silkies, and Polands were highly commended. The Selling classes for both sexes were well filled, and very good Silver-spangled won in each case. There were eighteen pens of Game *Bantams.* The first prize and cup for that section were awarded to Piles, this pen being of extraordinary quality for that colour and in the best condition. Second came Black Reds, the cockerel not in the highest order, and the hen very neat but a little squirrel-tailed; the third an old pen, splendid in colour but rather heavily feathered. In the next class of Bantams a pen of Silver Sebrights of great purity of ground colour and without a single speck on the tails, except the proper lacing, were first, very good Blacks second, and Whites third. *Ducks* in neither class were of particular note, with the exception of a pair of Ruddy Shells, which were too late for competition.

The competition in *Pigeons* was severe, a cup for the greatest number of points being given. Mr. Hawley, out of twenty-three entries, took four first prizes, five second prizes, and eleven high commendations. Mr. Waddington followed with twelve entries and one first prize, two second prizes, and five high commendations; and Mr. Jones with fourteen entries and one first prize, two second prizes, and five high commendations. Carriers were first on the list, both classes of adult birds being good and the competition close. The first-prize Black cock was good in size, style, and carriage, had a good beak-wattle, but was not so good in eye as the second-prize bird, but the first-prize hen was the best in the class. The young class contained some most promising birds of both sexes and colours. Mr. Wren here also sent thirteen specimens of excellent birds, but not for competition. In Pouters the first-prize cock was Blue and the second White; the former 19½ and 7 inches, and the latter 18¼ and 7 inches. Of the hens the first was Red, 19 inches by 7¼, and the second Blue, 17¾ inches by 7, although the latter bird had the best carriage in the Show. Shortfaced Tumblers were good. Almonds were both first and second. It is seldom that so good a collection of Longfaces is seen. Several of the pens were perfect in marking and free from trimming. Black Balds were first and Black Mottles second. Barbs, both old and young, were moderate in quality. The best pair in the first-named class was left out on account of their eyes being quite made up. Fantails were a good class. In style and carriage the first-prize pair was perfect; and although the birds were small, they were not nearly so small as the second-prize pair. Antwerps were a most interesting class—every variety of head, from the Dragoon to the common Snipe and Barb, every colour of eye, and some even with a portion of feather on the leg. The first prize went to a sound-coloured pair of Duns with long heads but very short thick beaks, the second to very short-headed Red Chequers, and the third to a very handsome pair of Longfaced Blue Chequers. In the Variety class, though it was large, Mr. Jones won very easily with Foreign Owls, the second prize going to Yellow Dragoons, the third to Ice, and the fourth to Nuns.

GAME (Any variety)—Cup and 2, S. Matthew, Stowmarket (Black-breasted Reds and Duckwings). Local Prize, C. Sayer, Lowestoft (Black Reds) *hc*, H. E. Martin, Sculthorpe (Brown Reds); R. Postle, Gazeley, Newmarket (Black Reds). *c*, R. Hall, Cambridge (2)

DORKINGS (Any variety).—Cup, F. Parlett, Great Baddow (Coloured). 2, L. (Patton, Hillmore, Taunton (Coloured). Local Prize, L. J. Feto, Lowestoft Coloured). *hc*, H. Lingwood, Barking, Needham Market (Coloured); Mrs. G. Clarke, Long Sutton.

SPANISH.—Cup, — Nicholls, Bros, Camberwell. 2, W. Jackson, Blakedown, Kidderminster. Local Prize, W. Saunders, Lowestoft. *hc*, P. H. Jones, Fulham; T. C & E. Newbit, Epworth.

COCHIN-CHINA (Any variety).—Cup, Lady Gwyder, Stoke Park, Ipswich. 2, H. Lingwood (Partridge). Local Prize, J. T. Woods, Oulton, Lowestoft (White). *hc*, H. Lingwood (Buff); J. Long, Plymouth (Buff). *c*, R. S. S. Woodgate, Pembury, Tonbridge Wells (White).

BRAHMA POOTRA (Any variety).—Cup, Lady Gwyder. 2, Horace Lingwood, Creeting (Dark). Local Prize, A. Page, Oulton, Lowestoft (Dark). *hc*, A. Page (Dark); Rev. J. Richardson (Dark); T. F. Ansdell, Cowley Mount, St. Helen's. *c*, W. Hughes, Oakham; Mrs. Bishop, Bungay (Light); J. Watts (Dark.)

HAMBURGHS (Golden-pencilled).—1, R. B. Parker, Ipswich. 2 and *hc*, W. K. Tickner, Ipswich. Local Prize, W. H Ashford, Oulton, Lowestoft.

HAMBURGHS (Silver-pencilled).—1, D. C. Packard, Macton. Local Prize, W. Saunders, Lowestoft.

HAMBURGHS (Golden-spangled).—1 and Cup, J. B. Lakeman, Ipswich. 2, R. H. Ashton, Mottram. Local Prize, Mrs. Deaton, Lowestoft. *hc*, T. May, Wolverhampton; W. K. Tickner.

HAMBURGHS (Silver-spangled).—1, Ashton & Booth, Mottram. 2 and Local Prize, J. B. Bly, Lowestoft.

ANY OTHER VARIETY (Except Bantams).—1, W. K. Patrick (Polands). 2, W. Jackson, Blakedown, Kidderminster (Polish). Local Prize, J. Lung, Lowestoft (Houdan). *hc*, Mrs. J. Cross, Appleby Vicarage, Brigg (Creve-Cœurs); E. P. Youell, Yarmouth (Black Hamburghs); W. H. Tomlinson, Newark (Sultans); R. S. S. Woodgate (Silkies); T. Waddington (Golden Polands).

SELLING CLASS.—*Cock, Cockerel, or Brood.*—1, J. B. Bly (Silver-spangled Hamburghs). 2, A. Page (Dark Brahma). 3, T. C. & E. Newbitt. Local Prize, C. Denton (Brahma). *hc*, J. Taylor, Lowestoft (Golden-pencilled Hamburgh); W. K. Patrick (Poland); C. Denton; H. E. Martin, Gedney (Brown Red Game); F. T. Gordon, Newcastle, Staffordshire (Game); Hon. Mrs. Paget, Hoxne (Brown Red Game). *c*, W. Burrows, Diss (Aylesbury Drake); T. M. Derry (Light Brahma and Partridge Cochin); M. Leco (Light Brahma); F. Bowman, Lowestoft (Duckwing Game); R. B. Parker (Golden-pencilled Hamburghs). *Hens, Pullets, or Ducks.*—1, J. B. Bly (Silver-spangled Hamburghs). 2, H. Griss (Spanish). Local Prize, C. Denton (Golden-spangled Hamburghs). *hc*, Rev. W. F. Dixon, Oby Rectory (Black Red Game); C. Denton (Golden-spangled Hamburghs); W. Saunders (Spanish); — Nicholls, Bros. (Spanish). *c*, J. B. Bly (Silver-spangled Hamburghs.)

GAME BANTAMS (Any variety)—Cup, T. C. & E. Newbitt. 2, W. Adams, Ipswich (Black Reds). 3, W. Robins (Black Reds). Local Prize, J. F. S. L. Barber, Lowestoft (Black Reds). *hc*, J. Long (Brown Red); W. Adams (Duckwing); Hon. Mrs. Paget (Duckwings); T. C. & E. Newbitt. *c*, T. Page (Black Reds); H. W. Wallace (Black Reds).

BANTAMS (Any other variety).—1, Mrs. J. M. Proctor (Laced). 2 and 3, Rev. F. Tearle, Gazeley (Laced). Local Prize, Mrs. G. Clarke (Black); C. Reed, Cambridge (White); R. H. Ashton (Black); Rev. G. F. Hodson, North Petherton; M. Leco (Laced); T. Waddington (Gold-laced and Pekin). *c*, Mrs. Balch (Japanese.)

DUCKS (Aylesbury).—1 and 3, F. B. Pe'is, Kessingland.

DUCKS (Any other variety).—1, Rev. J. Richardson (East Indian). 2, A. Page (Rouen). Local Prize, T. Tack (Montevideo). *hc*, M. Leco, Markyate Street (Carolina); R. H. Ashton (Mandarin); Rev. J. Richardson (Carolina); R. S. S. Woodgate.

EXTRA CLASS.—*hc*, W. V. Barnard (Peafowls.)

PIGEONS.

CARRIERS.—*Cock.*—1, E. Walker, Leicester. 2, T. Waddington, Feniscowles, Blackburn. *hc*, F. W. Metcalfe, Cambridge; T. Waddington; S. Holroyd, Hunmanby, Oldham. Jun.: P. H. Jones. *Hen.*—1, T. Waddington. 2, E. Walker. *hc*, F. W. Metcalfe; T. Waddington.

CARRIERS (Any variety).—*Young.*—1, E. Walker. 2, J. Hawley. 3, H. Thorlow. *hc*, S. Holroyd; C. H. Clarke, Old Scotnton, Nottingham; F. W. Metcalfe; E. Walker; E. Edmonds, Yarmouth.

POUTERS.—*Cock.*—1 and *hc*, J. Hawley. Bradford. 2, H. Thurlow, Burnham Market. *vhc*, W. Nottage, Northampton. *c*, J. Hawley. P. H. Jones (2); T. Waddington. *c*, W. Nottage. *Hens.*—1, J. Hawley. 2, P. H. Jones. *hc*, J. Hawley; T. Waddington. *c*, W. Nottage.

TUMBLERS (Short-faced).—1 and *hc*, J. Hawley. 2, P. H. Jones. *c*, T. Waddington, Feniscowles.

TUMBLERS (Any other variety).—1 and 2, J. Hawley. Local Prize, C. Cowles, Lowestoft. *hc*, J. Hawley; J. Lincoln (Yellow Balds); W. Simmons (Yellow Beards)

BARBS.—1, E. Walker. 2, J. Hawley. Local Prize, D. Bedford Lowestoft. *hc*, W. Minard, Dover; P. H. Jones. *Young.*—1, E. Walker. 2, T. Waddington. *hc*, J. Hawley. *c*, P. H. Jones.

FANTAILS.—1, J. S. Loversidge. 2, J. Hawley. *hc*, T. Waddington; P. H. Jones; A. A. Vander Meersch.

ANTWERPS (Any variety).—1, J. W. Collinson, Halifax. 2, J. Hawley. Local Prize, D. Bedford. *hc*, J. Hawley; W. Mioson; W. H. Mitchell; — Holroyd.

ANY OTHER VARIETY.—1, P. H. Jones (Owls). 2, G. S. Clements (Yellow Dragoons). 3, T. Waddington (Ice). 4, J. Watkins (Black Nuns). Local Prize, A. W. Wren (Red Dragoons). *hc*, J. Hawley (Turbits and Owls); H. Thurlow (Blue Dragoons); A. W. Wren (Yellow and Red Dragoons); W. Nottage; R. Craoe, jun. (Blue Dragoons); W. Minson; P. H. Jones (Trumpeters); A. A. Vander Meersch (Black Magpies). *c*, Mrs. Bishop (Blue Runts.)

SELLING CLASS.—1, W. Minson (Barbs). 2, H. Thorlow (Dun Carriers). Local Prize, A. W. Wren (Yellow Dragoons). *hc*, J. Hawley; A. W. Wren (Yellow Dragoons); P. H. Jones; E. Edmonds (Carriers.)

JUDGES.—Rev. T. L. Fellowes, Norwich; Mr. E. Hutton, Pudsey, near Leeds.

DRAGOONS AND ANTWERPS.

I TAKE a great interest in the breeding of both Dragoons and Antwerps, and I venture to endorse the remark you make about those two important classes of Pigeons.

Dragoons, as you say, are increasingly popular; it is, therefore, all the more necessary that breeders should have before them a fixed standard of excellence at which to aim; that decided, all breeders would keep a keen eye upon the goal, and our judges would not only be spared much indecision, but much criticism.

When Mr. F. Graham opened the question I hoped to have seen a greater interest manifested, but suppose that, as the Dragoons are a breed that has hitherto received but here and there a notice by the various show committees, there are not many large breeders. The difference of opinion seems not to be in regard to the build of the bird's body, which, by-the-by, I think is mostly rather too heavy, but as respects the beak, wattle, and eye. Is not the "stout" beak, advocated by Mr.

Graham, the opposite error of the "spindle" beak he condemns? Does not a medium add gracefulness to the birds? Is not the "heavily-wattled," so often used in connection with them, out of character? Do they not look more graceful without it—more like a distinct breed, which I think is what we ought to aim at?

With respect to Antwerps—a class that should afford considerably more amusement to society than they do, by exercising their special powers of flight—they, too, seem to have drifted from their old moorings, and, as too often seen at our shows, uncertainty prevails. It appears to me that the most simple way to form a standard would be for the Committees of our two largest shows—namely, those at the Crystal Palace and Birmingham—to exchange opinions, and publish their decisions in this Journal. Other committees would be certain to follow in the wake.—WILLIAM MINSON, *St. Ives*.

PIGEONS GOING LIGHT.

I HAVE had several of my Pigeons in this condition, and I have effectually cured them by feeding them on toasted bread and ale, keeping them warm, and giving them a little canary seed to peck at. A friend of mine has also had several cases amongst his Antwerps; he has fed the birds on bread crumbs, and given them milk to drink. I know of another case of a Carrier fancier who had his birds light all the summer, and was unable to breed from them. He was administering cod liver oil to them night and morning, and hoped in a short time to have his birds all right again. A friend at once tried the oil. He says it is the finest thing he ever tried; the worst result is that the oil greases the birds so that they are not fit to go into a show pen until they have moulted.—H. ALLSOP.

QUEENS LEAVING THEIR HIVES.

HAD the question been asked me before last spring, Do adult queens leave their hives except with swarms? I should have readily answered, Decidedly not. Such a proceeding is quite contrary to their instincts. I will, however, narrate the only exception to the rule I have yet met with during the course of my experience.

Very early in the past year a friend at a distance forwarded me his strongest black colony, which I had promised to Italianise. On arrival it proved to be both populous and well stored. To accomplish the object in view I took advantage of the first mild day to drive the black stock and dethrone its queen. I then made an examination of my weakest hive, which towards the close of the season had been but a queenless nucleus, to which I had safely introduced an imported queen, unexpectedly received at the end of October from the late Mr. Woodbury, to whom I cannot allude without joining in the general expression of sorrow at the great blank which has been caused by his removal. I had never the good fortune to meet Mr. Woodbury, but from a constant correspondence carried on for some eleven years, and intensified from the circumstance of our apiaries having been simultaneously swept with foul brood, I cannot look back on the kind sympathy, happy suggestions, and sound advice his ready pen at all times so fraternally afforded, without expressing my great regard for his memory.

The four frames of the nucleus were transferred to a Stewarton breeding-box, and the readiest mode of feeding was setting upon it a good super honeycomb, and on now making an examination I found the bees had vacated entirely the lower box, had thinned-down the central combs, and that beautifully-banded young bees and brood in all stages abounded in the octagon super. The queen herself had attained most matronly proportions since the preceding fall, and was markedly the highest-coloured and most beautiful I ever beheld. At dusk the same evening I transferred this super to the black colony, and on drawing the intervening slides had the satisfaction to hear a pleasant hum set up, and the queen, missing, commotion subside in the black colony. On the following morning I found the yellow-jackets freely fraternising with the blacks, and as the weather was too cold to re-drive the stock to satisfy myself as to the safety of the queen, I had the further satisfaction, two or three days afterwards, of seeing her majesty freely perambulating the combs in front of one of the windows.

A good many weeks passed over; on genial days fine flights of nicely-banded Italians emerged, till late on a very sultry afternoon towards the end of April, when visiting the apiary, my attention was attracted to this particular colony by a most unwonted sound. Could it be possible?—drones in April! when with us they rarely appear before the first days of June, and in *full* hives too! but sure enough there they were in abundance, the air reverberating with their pleasant hum, among quite a little cloud of gay youngsters of the other sex. While stooping over the landing-board to admire the very distinct and bright banding of the males, quite in keeping with the unusual fineness of the high-coloured workers, to complete the family group, to my utter amaze, who should appear at the entrance but the royal mother herself, no shy slim princess on matrimonial tour intent, but my beautiful and matronly queen. She evaded my grasp on my endeavouring to clutch her, as I hastily supposed, in her mad career to abandon her hive, and majestically soared away. Transfixed, I pulled out my watch; ten seconds did not elapse till she alighted on the board and re-entered the hive as composedly as if an afternoon's airing with royalty might be an everyday matter.

I cannot account for the phenomenon on any other ground than that possibly the queen may have for the first time descended from the upper to the lower breeding-box, and when there was impelled in the crowd still onwards to the entrance, by the hubbub and excitement of the moment, mistaking the exodus of young bees and drones for a swarm, and, not discovering her mistake till fairly on the wing, she then quietly returned.—A RENFREWSHIRE BEE-KEEPER.

THE NORTHAMPTON SOCIETY'S POULTRY SHOW.—The third annual Show is to be held on the 6th and 7th of March. The schedule indicates a progressive spirit, the chief feature being to give all sorts of breeders a chance. The prizes are liberal considering the number of classes in the schedule, and for a young society; but it is started on a good basis, and managed by men who evidently understand what they are about. Seven pieces of plate and £100 for prizes are not bad for a third show, when it is known that the whole, with the exception of one piece of plate, is offered by the Committee themselves. Placed in the centre of England, with good railway accommodation, Northampton should be well patronised by all breeders.—H. THORNYCROFT.

TO MAKE A VARNISH THAT WILL IMITATE GROUND GLASS.—Mr. J. Garratt has favoured us with the following:—To make a varnish to imitate ground glass dissolve 90 grains of sandarac and 20 grains of mastic in 2 ozs. of washed methylated ether, and add, in small quantities, a sufficiency of benzine to make it dry, with a suitable grain—too little making the varnish too transparent, and excess making it crapey. The quantity of benzine required depends upon its quality—from half an ounce to 1½ oz. or even more; but the best results are got with a medium quality. It is important to use washed ether, free from spirit.—(*British Journal of Photography.*)

OUR LETTER BOX.

BIRMINGHAM CUP DORKING COCKEREL.—I think it right to state that the Dorkings Mr. J. B. Saunders advertised in your Journal as being bred from Arkwright's cup cockerel of 1870, at Birmingham, are incorrect; the cup cockerel of that year was bred by me, and was sold there at the show for £9 9s. to a gentleman who still has him.—J. J. WALLER, *Mint House, Kendal*.

SUBSCRIBERS TO THE WOLVERHAMPTON LIGHT BRAHMA CUPS.—The following ladies and gentlemen have subscribed to the Wolverhampton Light Brahma cups:—Mrs. A. Williamson, 10s. 6d.; Miss Hales, 10s. 6d.; Mrs. Turner Turner, 10s. 6d.; Messrs. Fares, 10s. 6d.; F. Crook, 10s. 6d.; A. O. Worthington, 10s. 6d.; J. Bloodworth, 10s. 6d.; H. M. Maynard, £1 1s.; J. R. Rodbard, £1 1s.; J. Beach, £1; Capt. Downman, £1 1s.; W. T. Storer the remainder, unless some other lady or gentleman will kindly assist.—W. T. STORER, *Shott Green, Brewood, Stafford*.

MRS. CLARKE (*W. Corbet.*).—Proceed against her husband in the County Court.

DUBLIN SHOW.—Col. Hassard, R.E. took the Peristeronic Society's cup, as well as the first prize, for the best pair of Carriers of "Any other Colour." For single cocks of La Flèche Mr. J. C. Cooper was 1st, Mr. G. A. Stephens 2nd.

PLYMOUTH POULTRY SHOW (*Journal*).—We decline inserting any more letters on this Exhibition, hoping that this year there may be fewer causes of complaint.

MINORCAS (*R. W.*).—The original Minorcas were black, and almost all the birds shown as birds of this breed of late years have been only degenerate Spanish. Their home was Devonshire, and many years ago when we tried that county to get some, we had answers that everywhere the breed was lost. The last person who had them was a clergyman, and he had to cross with Spanish in order to keep a semblance of the breed. We have not seen a Minorca for thirty years. We are, however, glad to hear it has been only a misfortune and that they still exist.

HOUDANS FEATHER-EATING (*Houdan*).—We have never met with a case of feather-eating in Houdans except at the end of the summer, and when they have been kept in confinement. We cannot account for it in this case; but as you say one hen is spoiling your walk of fowls, you should immediately remove her before the others learn the habit. You should have done so at once. Fowls are like children at school, there is nothing one will not do that others will not copy. Feeding has something to do with it, and we do not approve of your dietary. Potatoes and Indian meal are bad feeding, oats are bad. Change it. Let the birds have morning and night some ground oats slaked with water, and barley for a mid-day meal. Give them all the table scraps you have, but if they have a good grass run they can do without cabbage leaves. They do not need the bullock's liver. It is sometimes given to birds in confinement, but it is hardly necessary. Continue the supply of gravel and bricklayers' rubbish. We do not think you can keep the Game Bantams satisfactorily in the way you propose.

SHELL-LESS EGGS (*G. P. C.*).—Your fowls are out of order. Alter their food for ground oats. If they are not to be had give oatmeal, and supply them with bricklayers' rubbish made up of old mortar, ceilings, &c.; they will pick among it and find material for the shell. They will benefit greatly by having thrown to them every day some large sods of growing grass cut with plenty of fresh earth.

FATTENING DUCKS (*J. C. L. R.*).—You cannot do better than continue feeding with barleymeal, putting it in water. We gather from your letter they are at Iberty; they will not, when ducklings, fatten unless they are confined. All you give goes to growth, as it would do in a healthy boy. The Ducks that are fattened in Buckinghamshire and Oxfordshire are kept up, and besides oatmeal and bran have meat given to them. As soon as they are old enough, when about half grown, they are very fond of oats put in a shallow vessel, the bottom of which is covered with a sod of grass, and then filled with water to the brim. They will eat this when they refuse other food. It is unusually early for a Game Bantam to lay at five months.

COCHIN-CHINA HENS LAYING IN WINTER (*J. S.*).—Yours is a very pleasing exception, and we congratulate you on it. We have ourselves some hundreds of hens and pullets. We have as yet only eggs from the latter. They are as well cared for and as well fed as any birds in the world, but they have no stimulating food, and no meat. Will you kindly inform us how yours are fed? Although we have half a century of experience, we are more than ready and happy to learn.

MALT DUST AS POULTRY FOOD (*W. L.*).—The eggs will be fertile within a week, if not earlier. Fowls are very fond of malt dust, and given moderately it is good food, but it communicates its flavour to the eggs.

BLACK SPANISH WITH RED FEATHERS (*Red Feather*).—It is no proof of impurity or inferiority of breed if a Spanish cock shows a red feather. Such come mostly in the hackle or saddle. All black-feathered cocks are prone to the same fault, and it often increases as they get older. Some throw red, some white feathers. We should not breed from such a one.

BREEDING FOWLS PURE FROM A MIXED RUN (*R. H. F.*).—Separate your fowls, and as the majority are probably not yet laying, you will lose little time. The Cochins and Brahmas will both do well in confinement; let the Dorkings have the run. At the end of three weeks or a month of separation you may safely set the eggs.

SIGNS OF POISONING IN FOWLS (*H. T. R. L.*).—The liver will be very much inflamed, the blood-vessels of the brain and intestines full of blood, while the inner coatings of the bowels will show red patches, and be honeycombed in places, unless some of the bile poison with which we acquainted should be used. We are led to this last remark because your fowls seem to be killed instantaneously.

CAPONISING (*Beeborough*).—The art of making capons is but very little practised in England. It is cruel, because it entails much suffering; it is expensive, because nearly half of the fowls operated on die; it has been given up, because the art of feeding poultry in England is now so well understood, that when a fowl has attained the age at which the operation can be performed it is as large as it would be some months afterwards. The thigh of such a fowl is as tender as that of a chicken, while the leg of a real capon is tough and stringy. The operation can, no doubt, be performed on Ducks and Geese, but we have never seen it.

SWEDES AND MANGOLD AS POULTRY FOOD (*R. E. H.*).—The Swede greens are very good for fowls, and we suppose Mangolds would be the same. We have never tried the latter. We grow late turnips on purpose to give the greens to poultry. They always have the root. If we gave roots we should give them raw, and chopped fine. We tried steaming Swedes once, but it was a failure. They seemed to run to water.

BREEDING WHEATEN BANTAMS (*Bantam Breeder*).—You must breed from two sets of birds to get cocks and pullets, the chief point you have to bear in mind being to cross judiciously. If you, at an exhibition, are taken by a pen which by the great merits of the cock, coupled with good hens, proves too much for your better hens that are weighed down by the inferiority of the cock, you may safely infer you have the hens, but you have not the cock. You must get a good cock of the successful breed, and put him to some of your best hens; from these you will breed cocks, while you already possess the hens. If you have runs enough, get two hens of the successful strains, and put to one of your cocks. You will then probably have what is almost an impossibility to breed winning cocks and hens from the same parents. The breast and hackle of a wheaten hen should be of the colour of a grain of red wheat.

POINTS IN NUNS.—"In reply to 'JACK,' five, six, or seven black feathers in each flight would equally apply. Birds having more on one wing than on the other would not be excluded from winning a prize, if they were not overshot. The white feathers must form a perfect saddle. Jacobins must not have white thighs, but be black, red, or yellow from the under mandible down to the vent, according to their colour.—F. W., *Birmingham Columbarian Society*."

STAMPING PIGEONS (*A. H. W.*).—It is usual to stamp the wing. You must not put any stamp on birds which you exhibit, as you would lose a prize.

FLIGHT FEATHERS IN NUNS (*W. E. E.*).—We gave the number of six in each wing on old and high authority, but certainly though the number of six dark feathers is a good medium to hit upon, yet more would be better, taking in, in fact, all the larger flight feathers. Under six would be too few, but the great thing is to have an equal number on each side.

TEMPERATURE OF AVIARY (*D. K.*).—If for Canaries only it is immaterial. They will stand the frosts and snows of winter if kept in an open aviary all the year round, provided it be roofed-in and they have a chance of finding shelter behind snug corners of the rafters, like sparrows in an outho use.—W. A. BLAKSTON.

METEOROLOGICAL OBSERVATIONS,

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude 111 feet.

DATE.	A.M.				IN THE DAY.				
1872. Jan.	Barometer at 32° and Sea Level reduced.	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 ft.	Shade Temperature.		Radiation Temperature.		Rain.
		Dry.	Wet.			Max.	Min.	In sun.	On grass	
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 24	28.616	42 4	40.2	S W.	41.8	49.9	40.6	75.2	37.5	0.113
Th. 25	29.090	45 4	44.2	S.S.E.	41.6	47.2	42.1	53.8	38.1	0.200
Fri. 26	29.285	44.0	42.8	S.	42.3	46.5	39.3	50.8	35.8	0.040
Sat. 27	29.807	42.1	41.4	N.	41.6	46.6	40.0	68.6	38.1	—
Sun. 28	30.052	42 0	40.1	N.E.	42.2	43 3	36.8	45 2	31 6	—
Mo. 29	30.009	44.2	43.0	S.	41.5	47.2	38.4	52.1	34.0	0.010
Tu. 30	29 869	48.0	47 3	S.	42.8	57.8	43.2	61.1	40.7	—
Means	29.520	44.0	42.7		42 0	47.4	40.2	58.1	36.4	0.363

REMARKS.

24th.—Dreadful wind in the past night, and the barometer fell to 28.332 at 4.47 A.M. on this day, being the lowest since 1849. A fine morning, showery after 1 P.M., fine night.

25th.—Wet and stormy morning, showery all day, but fine about 10 P.M., rain in the night.

26th.—Fair but dark and damp, showery and often dark during the day, fine at night.

27th.—Fair though dark in morning, but soon improved, was fair all day, and at times very bright.

28th.—Still fair but misty and close in early morning, intense darkness from 11.55 A.M. to 0.10 P.M. finer in the afternoon.

29th.—Fair but dull, a little sunshine about 2 P.M., then dull and showery the remainder of the day.

30th.—Dull though dry, gleams of sunshine between 1 and 2 P.M., and fair after, fine at night.

The unusual depression of the barometer has brought no material change in the weather, which continues unusually warm, damp, and dull.—G. J. SYMONS.

COVENT GARDEN MARKET.—JANUARY 31.

THE abundant supply of out-door produce of home growth, and the additions made to it from the Channel Islands, have a marked influence on our markets, and although the attendance is good in general, no advance can be obtained. English Apples of first quality are scarce and dear; American Newtown Pippins good, but not plentiful this season. Pears comprise Ne Plus Meuris, Beurré de Rance, Josephine de Malines, and Knight's Monarch. A fair amount of business is done in the Potato trade, though stocks are heavy.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples ..... ½ sieve	2 0	to 4 0	Melons ..... each	2 0	to 3 0
Apricots ..... doz.	0 0	0 0	Mulberries ..... lb.	0 0	0 0
Cherries ..... lb.	0 0	0 0	Nectarines ..... doz.	0 0	0 0
Chestnuts ..... bushel	10 0	20 0	Oranges ..... ₱100	4 0	10 0
Currants ..... ½ sieve	0 0	0 0	Pears, kitchen ..... doz.	2 0	4 0
Black ..... do.	0 0	0 0	dessert ..... doz.	3 0	8 0
Figs ..... doz.	0 0	0 0	Pine Apples ..... lb.	6 8	10 0
Filberts ..... lb.	0 6	1 0	Quinces ..... doz.	0 0	0 0
Cobs ..... lb.	0 6	1 0	Raspberries ..... lb.	0 0	0 0
Grapes, Hothouse ..... lb.	4 0	8 0	Strawberries ..... lb.	0 0	0 0
Gooseberries ..... quart	0 0	0 0	Walnuts ..... bushel	10 0	25 0
Lemons ..... ₱100	7 0	10 0	ditto ..... ₱100	1 0	2 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes ..... doz.	4 0	to 6 0	Leeks ..... bunch	0 3	to 0 0
Asparagus ..... ₱100.	5 0	8 0	Lettuce ..... doz.	1 0	2 6
Beans, kidney ..... per 100	3 0	4 0	Mushrooms ..... pottle	1 0	2 0
Broad ..... bushel	0 0	0 0	Mustard & Cress ..... punnet	0 2	0 0
Beet, Red ..... doz.	1 0	3 0	Onions ..... bushel	2 0	4 0
Broccoli ..... bundle	0 9	1 6	pickling ..... quart	0 6	0 0
Brussels Sprouts ..... ½ sieve	1 6	3 0	Parsley per doz. bunches	3 0	4 0
Cabbage ..... doz.	1 0	1 6	Parsnips ..... doz.	0 9	1 8
Capsicums ..... ₱100	0 0	0 0	Peas ..... quart	0 0	0 0
Carrots ..... bunch	0 6	0 0	Potatoes ..... bushel	2 0	3 0
Cauliflower ..... doz.	2 0	6 0	Kidney ..... do.	3 0	6 6
Celery ..... bundle	1 6	2 0	Radishes .. doz. bunches	0 6	1 0
Coleworts .. doz. bunches	2 0	4 0	Rhubarb ..... bundle	1 0	1 0
Cucumbers ..... each	1 0	3 0	Savoys ..... doz.	0 9	1 9
pickling ..... doz.	0 0	0 0	Sea-kale ..... basket	1 0	2 0
Endive ..... doz.	2 0	0 0	Shallots ..... lb.	0 4	0 9
Fennel ..... bunch	0 3	0 0	Spinach ..... bushel	3 0	4 0
Garlic ..... lb.	0 8	0 0	Tomatoes ..... doz.	0 0	0 0
Herbs ..... bunch	0 3	0 0	Turnips ..... bunch	0 3	0 6
Horseradish ..... bundle	3 0	4 0	Vegetable Marrows .. doz.	0 0	0 0

POULTRY MARKET.—JANUARY 31.

OUR supply is becoming very limited, but there is little or no demand. Prices have somewhat advanced, and we may soon look for a steady increase of value.

	s. d.	s. d.		s. d.	s. d.
Large Fowls	3 6	to 4 0	Partridges	2 0	2 6
Smaller ditto	3 0	3 6	Hares	3 6	4 0
Chickens	2 0	2 6	Rabbits	1 4	1 5
Geese	7 0	8 0	Wild ditto	0 10	1 0
Ducklings	3 6	4 0	Pigeons	1 2	1 3
Pheasants	3 6	4 0			

WEEKLY CALENDAR.

Day of Month	Day of Week	FEBRUARY 8—14, 1872.	Average Temperature near London. Day.	Night.	Mean.	Rain in 43 years.	Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.
						Days.	m. h.	m. h.	m. h.	m. h.	Days.	m. s.	
8	Th	Half Quarter Day.	45.6	32.0	38.8	22	30 af 7	59 af 4	40 af 7	1 af 4	20	14 26	39
9	F		45.3	30.9	38.1	17	29 7	1 5	14 8	29 5	●	14 28	40
10	S		44.9	30.1	37.5	16	27 7	3 5	39 8	53 6	1	14 30	41
11	Sun	Quinquagesima.	44.5	29.8	37.2	19	25 7	4 5	59 8	17 8	2	14 30	42
12	M	Meeting of Royal Geographical Society.	44.9	29.6	37.2	16	23 7	6 5	18 9	36 9	3	14 30	43
13	Tu	Royal Hort. Society's Ann. Gen. Meet., 3 P.M.	44.3	29.6	36.9	14	22 7	7 5	34 9	49 10	4	14 29	44
14	W	Royal Horticultural Society's Fruit, Floral, and General Meeting.	45.6	30.9	38.3	15	20 7	9 5	53 9	morn.	5	14 27	45

From observations taken near London during forty-three years, the average day temperature of the week is 45.0°; and its night temperature 30.4°. The greatest heat was 65°, on the 10th, 1831; and the lowest cold zero, on the 13th, 1855. The greatest fall of rain was 0.52 inch.

CABBAGES.

HOW many distinct and typical forms of garden Cabbages have we in cultivation, or what are we to consider as such? Attention is being directed to this subject through the following announcement in the new schedule of prizes offered by the Royal Horticultural Society:—

Special Prizes offered by Messrs. Barr and Sugden, of Covent Garden, for the year 1872.—Assortment of the most distinct and typical forms of Cabbages, named (not including Savoys). Two examples of each, not less than 10 distinct kinds. £5.

The Prize to be competed for successively at any of the Meetings in the Autumn of 1872, as the various sorts may appear in condition.

Note.—The object of the prize is to ascertain what really distinct forms of Cabbages are in cultivation. The plants must be exhibited in their integrity as far as possible—*i.e.*, with the roots, leaves, &c., so as to show their true character.

N.B.—A similar prize will be offered by the Society for competition at any of the Meetings during May, June, and July, 1873.

This is prize-offering of a praiseworthy character, for which Messrs. Barr & Sugden deserve our special thanks; the object being, as stated, "to ascertain," and as we understand it, to fix and record in some tangible manner for general benefit and reference, the various permanent and distinctive typical characteristics of this important class of vegetables.

It would be of the very greatest importance indeed to the whole vegetable-growing community, could every distinct and typical form of vegetable be so figured or described that at any future time it could be easily recognised. We want a sort of descriptive vegetable album as an authority or standard to which we could at all times refer. Vegetables are all greatly inclined to variation—to deterioration, in fact. It is only by immense care and trouble on the part of our seed-growers, which the ordinary cultivator knows nothing of, that our vegetable stocks are kept so pure and true as they are. This tendency towards variation leads inevitably to the multiplication of names, and so in time to the actual loss of the identity of the original.

But to return. Messrs. Barr & Sugden wish to ascertain what really distinct forms of Cabbages are in cultivation. We venture to say, Very few—far fewer than the long lists of names in our seedsmen's catalogues would lead us to suppose. What, however, is or will be considered a form or type? and where is the authority? Intending exhibitors will be anxious to know all about this. On looking over some half-dozen of the trade seed-lists of this season we find no fewer than eighty-four sorts of Cabbages bearing distinct names, and which are all (presumably) sold as distinct. We can scarcely suppose that, although these are sold as distinct sorts, they will be accepted by the Fruit and Vegetable Committee as sufficiently distinct forms. No, a particular name, although a generally recognised one, does not confer distinctness. These points, however, must be left to the decision of the Judges, who, consequently, will have no light or easy task to perform.

Anyone at all conversant with Cabbages is well aware of how they sport and vary. Go into the market gardens, see in a ten-acre field if you cannot pick out nearly as many distinct Cabbages as you will find in a collection of thirty or more named sorts, not including the rubbish, from one of the London seed houses. The market gardener has only one stock of seed saved with the utmost care from his very best examples, and yet the plants exhibit all this wonderful variety—some early, some late, some small, some large. This liability to variation is greatly influenced by seasons; sow from the same bag of seed the following year, and not half the variation will be seen. This is how new Cabbages, at least new names for Cabbages, are manufactured. Seed is saved from these accidental variations, and named Jones's Early, Smith's Champion, or Robinson's Superfine, as the case may be, and for a season or so some of their peculiarities may be retained.

The reputed varieties of Cabbages are far too numerous, and the distinctions far too trifling; so that we hope this prize offered by Messrs. Barr & Sugden will be the means of putting us a little right in the matter. How very annoying it is, in endeavouring to keep up our supply of Cabbages throughout the season, to find, after having ordered ten or twelve sorts of "lates" and "earlies," that from one packet of the true London Market the same results could have been obtained.

In 1862 a trial of sixty-one named sorts of Cabbages was made in the Royal Horticultural Society's garden, Chiswick, and as the Report states, the Committee only found five distinct, no less than twenty-eight of them being synonymes or more or less impure stocks of the London Market, Fulham, or Battersea. In this, the year 1872, the Report has pretty much the same application; many of the same names, indeed, are still advertised. Embodying the synonymes given in this Report, therefore, so far as applicable to the present time, added to our own observation and experience, we subjoin a list of what we consider the most distinct and typical forms of garden Cabbages.

1. Early York.—Very distinct. Head small, oval; leaves dark green, showing very little rib. A very early sort, the best to sow early in spring for early summer use. If sown in autumn to stand the winter it is apt to run to seed.

2. Little Pixie.—Dwarf. Heads small, more pointed than those of Early York, and of a paler green, with more ribs.

3. Atkins's Matchless.—Dwarf. Heads pointed, larger than Little Pixie.

4. Sugarloaf.—Very distinct, dwarf. Heads small, the leaves heading over like a Lettuce, and of a peculiar pale green colour. This seldom hearts firmly, although appearing to do so.

5. Nonpareil.—Allied to, but perfectly distinct from, the London Market; the heads smaller, more rounded. McEwen's resembles this.

6. London Market.—The great London market Cabbage. Distinct. Leaves large, round, broad, with thick midribs, and forming large, solid, roundish, somewhat pointed hearts. Dwarf. The best variety to sow in July for early summer use. The following are a few of the synonymes:—Fulham, Battersea, Vanack, Enfield Market, Emperor, Mitchell's Prince Albert, Wellington, Sheppard's Marrow, Shilling's Queen, East Ham, King of the Cabbages, Cattell's Reliance, and Champion.

7. St. John's Day Early Dwarf Drumhead (*Chou Jeannet*).—Very dwarf. Heads large, flat, like the Drumhead or Cattle Cabbage. Very crisp and tender. A most excellent Cabbage for autumn use. Sow in April, and plant in rich ground 15 or 18 inches apart for September and late autumn use.

8. Winnigstadt.—Dwarf stem. Heads large, broad at the base, tapering or conical, very hard. Boils very tender. Leaves glaucous. Unprepossessing at first. Exceedingly good in dry summers. Sow in July or August for use the following July and August. It requires much the same treatment as Red Cabbage.

9. Pomeranian.—Stem tall. Heads exceedingly long, pointed, becoming very hard. Excellent. Somewhat in appearance like the Winnigstadt, but taller, more pointed, and having the leaves pale green, not glaucous.

10. Drumhead.—Tall. Heads very large, flat. Plant exceedingly robust. Coarse, scarcely admissible as a garden Cabbage.

11. Portugal Cabbage (*Coure Tronchuda*).—Very distinct. Leaves large, pale green, with very thick fleshy white midribs, which cook like Sea-kale. Hearts sometimes close and firm. Flowers white. Sow in spring for autumn use.

12. Vaugirard.—An interesting variety, coming into use in winter. Rather coarse. Heads of medium size, flattened. Leaves slightly tinged with brown.

In addition to these we have the Coleworts, the Savoy Cabbages, and the Red Cabbages. The above, therefore, represent the most distinct types of garden Cabbages. Of No. 1, Early York, there are several forms, but all easily recognised; also No. 4, Sugarloaf, is quite distinct. Nos. 2, 3, 5, and 6 all more or less resemble one another, and form the main body of what we term White Cabbages.

We could extend the list of names and our remarks further, were it necessary, and give selections of varieties from the seed catalogues before us, stating the type to which each belongs, but we think we have said enough to show that there are not many distinct forms of Cabbages, that two-thirds of the names found in commerce are applied to mere variations, more or less pure, of the great London Market Cabbage of Covent Garden.—B.

AURICULA GOSSIP.

Now that the time for promoting the spring growth of this lovely flower has arrived, and all growers of it will soon be busy top-dressing—an operation I never leave to other hands than my own—it may not be unseasonable to say a few words about the Auricula and its prospects. And I do this the rather as I have received during the past week letters from my old correspondent Mr. George Lightbody and from a brother clergyman, unknown to me personally, but the son of one who in former days stood high in the rank of florists, and whose collection of Tulips and Auriculas was known throughout England.

There is, I think, from what I see and hear from others, a prospect of a good bloom this spring. The very mild winter that we have had has been a favourable one for the flower, where care has been taken to keep out wet and to give air on all possible occasions. I have never had my own collection in better health or showing more promise of a good bloom, and I hear the same report from others. May we not hope, then, that at the April Show at Kensington we shall find a beautiful array to delight all lovers of the flower, and, it may be, astonish outsiders? One thing we may rest assured of—that from the collection of Mr. Turner, of Slough, there will be a magnificent display staged. The Slough Auriculas have been long famous, and now they have attained an extent in amount and quality which we may fairly say is unequalled. During the autumn he became the possessor of a large collection belonging to a grower near Glasgow, containing between five and six hundred plants of all the best known varieties; while he had previously purchased the collection of that veteran grower, Mr. Headley, of Stapleford, the raiser of George Lightbody, Conductor, &c., and in this are, I have reason to believe, some remarkably fine seedlings, especially amongst green edges, so that here will be a treat in itself for the lovers of the Auricula.

The mention of seedlings reminds me that some of our oldest raisers are retiring from the field. Campbell, of Falkirk, the raiser of Pizarro, Lord Palmerston, Robert Burns, &c., who is now seventy-three, will sow no more seed. He has been working indefatigably for the last twenty years to obtain crimson selfs with a good paste from old Lord Lee, and now believes that he has succeeded. Then Mr. Lightbody also gives up; he is well known as the raiser of Richard Headley, Fair Flora, Lord Clyde, &c. Mr. Robert Traill, another veteran grower, the raiser of Mayflower, General Neill, &c., also retires from the field; and last, but not least, Mr. Headley. It shows the difficulty of raising seedlings of any moment, that these growers, who have been for thirty or forty years engaged in thus raising seedlings, have only left some half-dozen varieties of any note in the catalogues, and even of these some will be perhaps displaced by-and-by. It is an honour, then, to be the raiser of a good Auricula, and testifies to patient endurance and perseverance; and let us hope that both north and south of the Tweed the mantle of these patient workers may fall on some who will be ready to take up the work.

There is one disadvantage connected with it—years must elapse before a seedling that passes muster can be distributed to the public, and then only in small quantities. You cannot propagate an Auricula as you can a Pansy or a Verbena; it will "gang its ain gait," and some sorts are very shy indeed in producing offsets. Hence it is that a flower like Colonel Taylor, which is forty or fifty years out, will still fetch half a guinea. On the other hand, there is the advantage that one is not for ever recasting one's stock, while the necessity for adding new varieties is much less than in any other florist's flower with which I am acquainted. How few of the Dahlias, Hollyhocks, or Pansies, of twenty years ago even, are cultivated now!

At my last repotting in August (for after all I believe that to be the best time for the operation; I have tried May, but it did not seem to succeed so well)—I used much less rich compost than I have hitherto done, and, as far as I can see as yet, with manifestly good results. Amongst my small stock I see a good deal of health, and my winter losses have been comparatively nothing, while I find the pots well filled with roots; and now, with a good top-dressing of sheep's manure well rotted, I hope to have a vigorous bloom. There is one thing I am especially anxious to avoid, and that is coarseness; for one of the greatest charms of the Auricula is its refinement; and when by overfeeding and stimulants this is lost, I think the result is fatal to this special beauty of the flower. I think at some of our metropolitan shows a mistake has been made in allowing plants to be shown with two trusses. In old days the symmetry of the plant as well as the beauty of the flower used to be considered, and when plants were shown in pairs an equality in the style of growth was insisted upon also. It may sound very well to have Auriculas like Cabbages with large overlapping leaves, but I think that the neat, stiff, symmetrical foliage is far more to be sought after. It is the same as with the Hyacinth. Surely the stiff erect foliage is more to be desired than the limp leaves which require to be tied up to prevent them falling over the sides of the pot. I think, too, the plan of showing an overcrowded truss is bad. I have seen them with as many as fifteen pips. Now, I believe one with a truss of seven, or at most nine pips, is a prettier object. All these, which I believe to be defects in showing, come from the idea, too prevalent now-a-days, that size is the test of excellence of growth.

It would only be reiterating an oft-told tale were I to mention which I consider to be the best varieties, and novelties are so few that they give one but little trouble. We shall probably see some this season from the Stapleford stock; while of Alpines, however pretty they may be and are, I must, as a bigoted old florist, say they will bear no comparison with the florists' varieties. They are indeed to be had in abundance. Mr. Turner has made a wonderful advance in them, but after all they must hold a subordinate place in the love of the Auricula-grower.—D., *Deal*.

MRS. PINCE'S MUSCAT GRAPE.

After the excellent article of Mr. Foote, page 106, I shall be very glad if Mr. Meredith would give us his experience of this Grape, he having had it in cultivation for some years; in fact, I know he has a house devoted entirely to this variety.

I myself have not succeeded in colouring this Grape as I should like, though I have grown it fine in bunch, and the flavour was all that could be desired; but I believe it must have a house to itself to ripen well, and another thing I believe is, that it will bear finer bunches on the rod or extension system than the spur system. I shall hope to see others contributing their experience of this fine variety of late-keeping Grape.—Stephen Castle.

ODONTOGLOSSUM ALEXANDRÆ AND LYCASTE SKINNERI.

The first meeting for the season of the Royal Horticultural Society (January 17th) was a most interesting one. The beautiful banks of Chinese Primulas and that increasingly useful flower the Cyclamen, Lord Londesborough's Orchids, and those sent by Messrs. Veitch and others, were worthy of all praise. But it is of the two species whose names are at the head of this paper that I want to write. The superb plant sent from Lord Londesborough's collection, and named by the Committee Odontoglossum Demisoniæ, is worthy of special notice. It is presumably a form of O. luteo-purpureum; the flowers are 3 inches in diameter; the sepals and petals are much elongated and pointed, as in O. luteo-purpureum. The colour is white tinged with rose and very slightly spotted, as in O. Alexandræ. In O. Alexandræ var. Bowmani, sent by Messrs. Veitch, we have the flowers large, well-shaped, and more densely spotted than in the type. Each recurring importation of these beautiful Odontoglots brings out new forms and serves to keep alive our interest in them.

Both of the species referred to are natives of New Grenada, and are found growing at an altitude of from 7000 to 8000 feet. Their culture is comparatively easy, and no garden where there is sufficient means should be without them. Their culture is as yet imperfectly understood by gardeners. I visited many gardens in the north last autumn, and found plants of O. Alexandræ had been added to small collections, and were being treated to the heat of a warm stove as well as free exposure to the sun. Such treatment can only end in failure: the pseudo-bulbs will shrivel, and the young growths be checked.

If a house has to be erected for this class of plants let it be a lean-to with a north exposure. At The Poplars, Leyton, the residence of F. G. Wilkins, Esq., there is a very excellent collection in a house of this description under the care of Mr. J. Ward. The pseudo-bulbs are plump, and the vigorous young growths throw up strong flower-spikes. The temperature in this house during winter falls as low as 35°. In the north of England and in Scotland, where the sun's rays are less powerful, the form and situation of the house may be different. At Meadowbank, near Glasgow, I found they were grown in a span-roofed structure running east and west, the plants close to the glass; indeed, this is important whatever the form of house. I grow them in a small span-roofed house with a night temperature of 45° in winter, but it is necessary to remove them to a cold frame in summer, as the excessive heat shrivels the pseudo-bulbs. The frame is placed under a north wall. The plants should not be overpotted; tough fibrous peat and fresh sphagnum chopped fine suit them, a few potsherds being added to keep the compost more open. The pots should be half filled with drainage.

Lycaste Skinneri.—The splendid assortment of ten distinct varieties exhibited by the Messrs. Veitch, of Chelsea, was a very attractive feature in the meeting. They had L. alba, the pure white variety; L. albida, white, with just the faintest tinge of rosy blush fringing the margin of the sepals and petals. Equally beautiful were the varieties more after the normal type, some with the lips white, others with beautifully blotched and spotted lips; one had a deep crimson lip. This is another class of Orchids, easy of culture, and to be obtained at a low price. One of the staff officers of this Journal said to me, "I do not grow Orchids. I will go in for Lycaste Skinneri by the dozen." The flowers are numerously produced, and last two months in beauty. All the varieties are from Guatemala, and were first introduced by the late Mr. Skinner.

Lycaste Skinneri is one of the very best winter flowers we have, and it succeeds in the cool Orchid house, although I have grown it very well in an ordinary plant stove, the plants being removed to a vinery at rest when the growths are matured. It does not succeed in a very low temperature. As an experiment I placed a plant in a cool greenhouse for the winter, and nearly lost it. The plants delight in a comparatively moist atmosphere and a temperature of 50° during the winter. When they are in flower they may be placed in a warm greenhouse or sitting-room without any fear of injury. The cultural remarks are easily summed-up. The compost is the same as that recommended for Odontoglots, and, like them, they require plenty of water when growing; and even when at rest they must not be allowed to become quite dry.

All the species of Lycaste are easily propagated by division when the plants are at rest.—J. Douglas.

KEEPING LATE GRAPES.

My experience in keeping Grapes this season is totally different from that of your correspondent Mr. W. Moore in page 86, although he has a structure for the purpose. I have now some fifty bunches of Lady Downe's and Black Alicante. They were cut from a span-roofed vinery with an inside border at the end of October. The house was then filled with Chrysanthemums, and it is so at the present time; it has also been regularly watered. The temperature at noon to-day (January 31st), was 48° without fire heat. In the same house are three young Vines, first year of fruiting—namely, one Black Muscat, one Muscat Hamburgh, and Mrs. Pince grafted on the Black Hamburgh. The fruit on these is rather shrivelled, but not decayed. The bunches cut in October are in a dark closet in my house, no ventilator except at the door, in bottles as Mr. Moore has them, with a little charcoal in each bottle. The temperature is 45° at noon and not a berry is cracked, and there are very few signs of cracking. They appear as if they would keep some months.—D. H.

My Grapes were cut on October 6th, and were chiefly Black Barbarossa (Gros Guillaume), and the stems were placed in quart bottles filled with spring water, and hung up in an airy garret close to the wall. I cannot claim great success for my experiment, but few of the berries burst. They kept plump for some weeks and afterwards began to shrivel, but in that state they became very tolerable raisins, and were found acceptable by my family. I have one bunch still left.

I intend to try the experiment again, and hope to be more successful, as I attribute the shrivelling of the berries very much to the fact of the Barbarossa not being so well finished as I have had it in former years, last autumn being unfavourable to bringing this Grape to perfection, as you are aware it requires a high temperature to ripen it. My object in writing is to recommend the Barbarossa to Mr. Moore and others as a better keeping Grape than the Alicante.—John Ferme.

My impression has always been that Grapes have the power of taking up water through the stem in the absence of leaves, hence my weighing the bunches as stated in the paper sent to you in order to test this. These bunches proved that such is the fact, although many gardeners of standing with whom I had communicated on the subject prior to my adopting the water system repudiated the idea, and argued the impossibility of the berries of Grapes having such power.

I am strongly impressed that at this time the true principle of keeping Grapes in water is not understood, and until it is so no correct practice can be founded. I am far from saying that none of my friends have succeeded in keeping them; but what I say is, the principle of their success is not thoroughly known, and therefore cannot be relied on practically. The information I should like to see conveyed through the pages of the Journal is, What is the lowest temperature at which Grapes can take up water in a perfectly dry room? Can Grapes evaporate the water so taken up through their skins, and, if so, at what temperature? Is not light a desirable agent? Is it of consequence to have the leaf ripe at the time of cutting, and if so why? always supposing the fruit to be thoroughly ripe. This and other important information I should like to see detailed.—W. Moore, *Belton Gardens*.

TOMATOES IN POTS.

I cannot agree with Mr. Douglas's remark at page 50, that Hepper's Goliath Tomato, in pots, carries a crop of very small fruit with one of immense size. I grew it last year in pots, and on every plant, ten in number, I left five or six fruit. These swelled to a great size, some weighing upwards of 1 lb., others less. They were the finest Tomatoes I ever had, and were considered by all who saw them to be by far the largest

that had ever come under their notice. I also planted out eight plants against the south wall, side by side with the old Red, a good variety, and I found Goliath bore quite as numerous a crop, and some of the fruit swelled to a much greater size.

I quite agree with Mr. Douglas in stating that gardeners exhibiting collections of vegetables in June will find a good dish of Tomatoes a strong point in their favour. If size is any object, I have no hesitation in recommending Hepper's Goliath.—James Smyth, *Fynone, South Wales.*

USEFUL FOREST TREES OF INDIA.

The Teak is of peculiar value for shipbuilding and other purposes from the power of the oil to conserve iron. Teak is by far the most valuable of Indian woods. The first-class Teak for shipbuilding takes seventy or eighty years in coming to maturity; for house-building and furniture there is a ready sale for the thinnings in twenty years.

Sál wood is used for engineering purposes, for shipbuilding, and for house-building. The trees grow very close together. Planting is not required; the seeds fall viviparous into the ground. This wood takes a long time to season, and it is liable to the attacks of some insects. The best of the Deodar timber comes from territory which is not British.

Deodar is, in fact, used for sleepers, but it is far too valuable a wood for that purpose. Then there is black wood, of great value for ordnance purposes, for house-building, and for carved furniture; it is planted in the same situation as Teak, and can be obtained of as large size as Teak.

Ebony is a wood of great value, and sold by weight. The Chinchona cultivation has been a remarkable success on the Neilgherry hills. It is of extremely rapid growth, and the bark of commerce is obtained at an early age. There are at least 2000 acres of Chinchona on the Neilgherries. It is expected that the leaves may yield a febrifuge for the masses.

Of Bamboo there are several species; next to the Cocoa-nut, the Bamboo is, perhaps, the most valuable wood in India for domestic purposes.

Rattans grow in great abundance in the forests of Malabar. The Rattan is a species of Palm, the stem of which runs along the ground for great lengths (80 feet to 100 feet or more); it is a product of considerable value, and likely to become a larger article of trade.

Caoutchouc and gums of similar properties are found largely in Assam. Recently rules have been laid down for the periodical tapping of the trees, in order not to overtax them.

The Breadfruit tree is grown in gardens. The Betel-nut is a valuable tree. The Casuarina, or Beef-wood, is a very useful tree, of rapid growth, and the timber of great hardness. It is quite large enough for building purposes. The wood is very hard, and turns the edge of the axe. It has the peculiar property of durability under water.

The Satinwood is much used for picture frames and fancy purposes; it resembles the American Maple. The Indian Dog-wood, a small tree of about 15 feet, is considered remarkably suitable for charcoal for gunpowder purposes.

Many other species of wood might be mentioned which it will be useful to conserve and propagate—the Red Cedar and other species of the Mahogany family; Ironwood, which is practically imperishable, and so forth. The cultivation of wood for fuel is of importance; in the drier parts of India it is so deficient that manure is burnt, and consequently the land is starved and production diminished.—(*Times*)

GRAFTING.—No. 2.

In our last we gave examples of inarching from Mr. Baltet's book, and we now continue the subject. There are some plants which cannot be grafted with certainty in the ordinary way by a free scion, and, therefore, recourse must be had to inarching. Mr. Baltet in his work gives various examples of this process, but as they all illustrate the same thing we shall content ourselves with giving the following extract:—

In commercial establishments there are sometimes new kinds of trees cultivated in pots. If it is desired to propagate them as standards, large stocks are planted, and the stock plant is raised to their height on a slight stage (*fig.* 1). To sustain the stock plant during a period of prolonged drought it will be convenient to place the pot in one of greater size, and to furnish the interspace with moss or fine sand to preserve the freshness.

An opposite example to the preceding is frequently met with in gardens. The stock plant is very strong and branched.

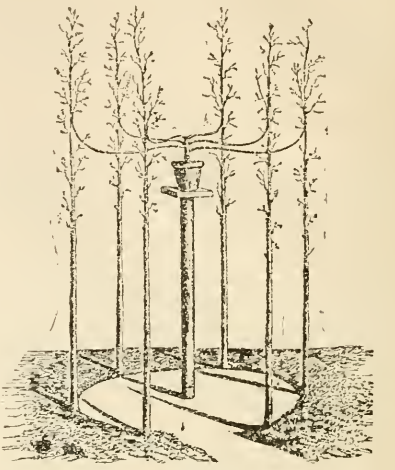


Fig. 1.

The extent of its roots and the shade of its foliage do not permit of young stocks being planted around it. To propagate it, young stocks must be cultivated in pots. In the second year after potting they are brought in contact with the branches of the tree to be grafted by means of a graduated stage. The pots being placed on this stage they are plunged in a bed of moss, tan, sand, or other light matter to preserve their freshness, for watering there will be difficult, and the rain and natural dews will be intercepted by the foliage.

Inarching for the Restoration of Plants.—Inarching is not the only mode that can be employed for the restoration of defective plants; but it is valuable where it serves to change the variety of a tree, to renovate the stem, and to repair the branches. Let us give a few examples.

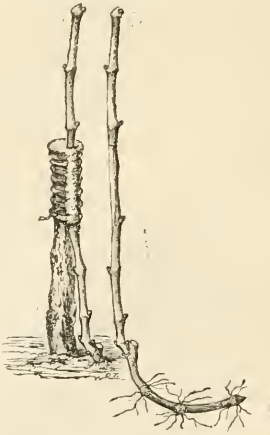


Fig. 2.

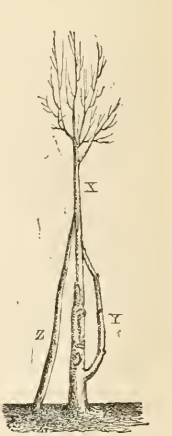


Fig. 3.

1st, *To Change the Variety.*—The Vine is subjected to this process by planting alongside the stock in winter a young-rooted

plant of the variety to be inarched (*fig.* 2). The time of inarching, which will be in April, having arrived, cut the stock to the height of the new plant, and as low as possible. Cut a longitudinal notch in the upper part of the stock, and a corresponding cut in the scion of the stock plant, leaving two or three eyes above it. When the graft is bound and waxed, the shoots of the stock plant are removed and kept in subjection.

2nd, *To Restore the Stem.*—The stock (*fig.* 3), the stem of which is cankered and furnished with gross shoots at the base, may be repaired by means of these shoots (x), which are buttress-grafted on the same stem above the wound. The course of the sap interrupted by the decay will then be re-established. In default of branches being found on the diseased tree, a strong stock (z), is planted in close proximity to it. After a year of good growth, head-down the stock z, and introduce it above the canker of the stem by means of buttress-inarching [as described in our last week's number.] When one stock is not sufficient for the regeneration of the tree, several may be planted round the old one and inarched in the same way. Consequent on this operation the diseased stem can be removed.—Baltet, *L'Art de Greffer.*

SOME PREDATORY INSECTS OF OUR GARDENS.—No. 26.

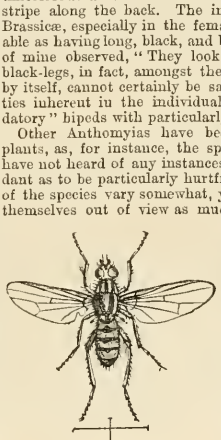
Being rather at a loss for a commencement, I think I cannot do better than offer a remark, by way of opening, upon some observations made by a contributor to this Journal, who has, what I do not profess to have, that practical knowledge of the habits of bees derived from bee-keeping. He complains that I have calumniated his favourites by very unkindly classing them amongst predatory garden insects, though I guarded my statements by admitting that they were only occasionally injurious. Their obvious partiality to sweets would certainly lead one to suppose that they would not hesitate at all to help themselves to any fruit which afforded saccharine matter, provided the supply from flowers ran short. I have not at hand the volumes of "Science Gossip," but in its pages a few years since there appeared communications, evidently written *bonâ fide*, wherein it was asserted that in various parts of England and Scotland, during a scarcity of wasps, the bees attacked the fruit; and my friendly critic must remember that, even if his statement is correct that bees will not meddle with fruit which is not beginning to decompose, they would still merit the name of predatory insects, for a good deal of fruit which has been injured by the weather and other causes is still available for some purposes. As to the perforations produced by bees in the corollas of some flowers, these are certainly disfigurements rather than actual injuries. Not very many cases have been recorded, but I have no doubt at all it is a thing which bees often do. It is only noticeable by the observant amongst our gardeners, the number of whom, though gradually increasing, is not so large as one could wish. So much for the tenants of the hive, which we will now dismiss. I have only to add that I am astonished to hear that the sting of a bee may be, if not agreeable, at least beneficial; so that, reversing the proverb, what is "poison" to some is "meat" or "health" to others. Possibly; still I doubt.

Many species belonging to the Dipterous order of insects are exceedingly fond of sporting in the sunshine, sometimes singly, sometimes in groups. So is it with those flies especially belonging to the genus Anthomyia, the tints of which are considerably varied, though made up o few colours, chiefly black, grey, and a reddish brown. The cause of this is that the wings and even the bodies of these insects show shifting hues, according to the direction in which the rays of light fall upon them. Frequently parties will cluster about the heads of composite and umbelliferous plants, at other times they rise high in the air, and the horticulturist, who knows how injurious some of the insects are in their preparatory stage of larva life, is tempted to wish they were not quite so lively. There are several species of these Anthomyias which frequent Cabbages and Cauliflowers. Anthomyia Brassicæ also attacks Turnips, but is not so frequently hurtful to them as to the plants from which it takes its name.

The unpleasant-looking larvæ or maggots of A. Brassicæ have been detected at almost all seasons, but in the colder weather of winter they become sluggish for a time. During May and June the species may be detected in all its stages. The pupæ are not to be found in the roots, when they are mature the maggots withdraw from their food and enter the earth. The maggots, it may be observed, though less in size, have some resemblance to those of the ordinary meat fly (M. vomitoria). The colour is yellowish white, there are no legs, but the head is furnished with two black hooks. The tail is blunt, and has two brown spiracles and some minute spines. The effects of the jaws of these little creatures is soon manifest, even by the external appearance of the roots; they become enlarged, and of an unhealthy colour. On pressure, or cutting them open, the interior is discovered to be full of cavities, within which the larvæ feed; and, in fact, the mischief is rarely discovered until the evil has gone too far for there to be any chance of saving the particular plants. Active as the flies are also at the time they take their excursions in the air, the females act very differently when engaged in their maternal employment, and go very stealthily to the work of oviposition. However, if we cannot find the eggs we can boil them or the newly-hatched maggots, and no doubt hot water poured close to the stem would be as efficacious here as it is in checking the ravages of the occasionally troublesome grub of Tipula oleracea, alias gaffer or daddy-longlegs.

To Cauliflowers the above species of Anthomyia is very hurtful in some seasons. The eggs have been detected attached to the stalk just below the ground; and burrowing in the fashion already described, the maggots soon bring the plant into a miserable condition. The very closely-allied species, A. radicum, makes Turnips and Radishes its speciality, its habits being similar, but its times of appearance different. The flies in this case appear in April, and the evil effects of the jaws of the larvæ are most noticeable in the autumn, whereas A. Brassicæ shows itself to be more hurtful in the spring or early summer. The larvæ of radicum are not so unicolorous as those of the other species, having a greenish stripe along the back. The imago, or perfect fly, resembles Brassicæ, especially in the female. Both species are remarkable as having long, black, and bristly legs; in fact, as a friend of mine observed, "They look like pests, and so they are," black-legs, in fact, amongst the flies; but length of leg, taken by itself, cannot certainly be said to be a proof of evil qualities inherent in the individual, for I have seen some "predatory" bipeds with particularly short legs!

Other Anthomyias have been noticed to affect Cabbage plants, as, for instance, the species called trimaculata, but I have not heard of any instances where this has been so abundant as to be particularly hurtful. The habits of the maggots of the species vary somewhat, yet they are all careful to keep themselves out of view as much as possible. Curtis, as far back as 1841, had called attention to the proceedings of A. Lactucæ, which had for some years previous destroyed much of the Lettuce seed in the eastern counties. The maggots of this species live in the flower-heads, and devour the receptacle and immature seeds.



Anthomyia Lactucæ.

The name of Coccus is almost, though not quite, as unpleasing in the ears of the gardener as that of Aphis and though mankind is greatly indebted to another species of the first genus for one of the most brilliant of colours, still this is scarcely an equivalent for the injuries done by Cocci to the Olive, the Vine, and various fruit trees. The Cabbage tribe have a tormentor of this sort, an account of which first appeared in the old series of the Transactions of the Entomological Society. Kirby, in speaking of it, remarks that "In 1836 much injury was done in the market gardens to the west of London to the Cauliflowers and other plants of the Cabbage tribe by a species of Aphis covered with a purple powder, which had not been before observed by the gardeners." This might suggest to some the idea that it had been introduced from a foreign country, like the so-called American blight. It is more probable, however, that it had previously been overlooked. By writers who subsequently studied its habits it received the name of Aleyrodes proletella, or, still more unsuitable, the Cabbage powder-winged moth, it having no claim at all to the latter name, as it plainly belongs to the Hemipterous order, and is, properly speaking, a Coccus. The females of this species settle down in a very insidious way upon the Cabbage leaves during June and July. "When about to lay their eggs,"

says one, "they remain quite quiet on a leaf for several days, and after they have left the spot on which they have rested, a small space covered with whitish powder is observable, round which are irregularly deposited from ten to fifteen eggs." It is, however, the custom of the female in many other species of Coccus to die upon her eggs, and form with her dried carcase a sort of protective shield for the young progeny. In this case the shelter is less needed by the larvæ, which almost immediately after they are hatched spread themselves about the leaf. Sometimes the parent Coccus is to be detected near her brood, but her presence does not seem necessary for their welfare. The young larvæ are almost colourless, and very sluggish in their movements, performing their work of destruction by means of a rostrum or beak, through which they suck up the juices of the plants. They have six legs, and as they increase in size are not easily to be distinguished from the same insect in its pupal state. The females also have a scaly appearance. The males, which have the thorax and abdomen variegated with yellow and black, have four wings, which are distinctly seen, the upper pair being the larger; all are covered with a mealy substance, and in repose bent over in a sort of roof. It has been calculated that one female can produce 200,000 descendants, this being on the supposition that a month suffices for these Cocci to pass through all their changes; but though they can withstand the cold of winter, and may be found then in a condition of tolerable activity, their multiplication is retarded at that time. I have not as yet had an opportunity of counting the number of eggs deposited by the females, but I am inclined to suppose that it is much larger than the estimate quoted. The radical remedy for this enemy of the kitchen garden is the immediate burning of all infected leaves. Syringing and smoking the plants have their advocates, and no doubt some of the modern compounds sold for the destruction of Aphides are not at all agreeable to the Cocci. Amongst other insect enemies which keep them in check, they are persecuted by a Cynips, and also they are preyed upon by a small Acarus.—J. R. S. C.

HYACINTH CULTURE.

I THINK the following may be of service to amateurs like myself. I purchased a good many bulbs at Messrs. Stevens's, and I had some of them planted in pots and plunged in a frame in the usual way. When they had made plenty of roots they were taken into the hothouse, but as I had more than I wanted I put the others, without pots, in the hothouse in the cocoa-nut fibre in which I always keep my Ferns plunged in pots during the winter, taking care to cover each bulb with the fibre. After about three weeks they all shot through and showed strong flower-buds. I have now taken them up and planted them in fibre in china bowls for the drawing-room, six or seven in each, and they expand their blossoms beautifully, not suffering in the least from the removal. To show how they will stand pulling-about, I two days since took out of the bowl one plant in full flower, placed it in a separate pot, and it has not even flagged. I attribute this to the lightness of the fibre, which prevents the rootlets being broken in moving. I should add that the bulbs grown in this way are at least three weeks earlier in flowering than those planted and plunged in the usual way.—M. F. W.

ESTIMATE OF STRAWBERRY MERITS.

YOUR correspondent "T. G." (see page 9), desires the experiences of intelligent Strawberry cultivators; it would be presumption of me to class myself as such, but as I have paid considerable attention to, and taken the advice so often given in the Journal, I will communicate what I know on the subject.

It would save much dispute and disappointment if nurserymen were more careful in sending out varieties true to name. Some years ago I had occasion to add six new varieties, and of these only one was correct; and only two years since, wishing to try Garibaldi, I obtained a few plants from a nurseryman near me, but they all proved to be Vicomtesse Héricart de Thury. After a while he assured me that both varieties were synonymous, and yet this nurseryman sells both varieties! Such conduct I consider reprehensible, I regret to say that from being thus misled I stated in the Journal that Vicomtesse Héricart de Thury and Garibaldi were the same. To satisfy myself I obtained plants from a source from which the varieties ought to be supplied true, and I can affirm that Garibaldi is a distinct variety, but I must wait until July before I can report on its good qualities. Nor is it with one person alone that these mistakes are common, because I have what ought to be one kind from eight different sources, and no two of these Strawberries are alike or true to name; in fact, I can only depend on getting them true by applying to the raiser, to market gardeners, or to amateurs.

I find that success in the cultivation of the Strawberry greatly depends on the manner in which the plants are treated when young. Strawberries ought to be planted immediately when lifted, and at such a time and in such a manner that in twenty-four hours afterwards none could discover they had been transplanted. No after-treatment will make up for the careless way in which Strawberries are too often managed at lifting time and subsequently, as exemplified in leaving the plants exposed so that the rootlets are dried-up, packing many together and covering lightly with soil, and often covering the crowns as much as if they were intended for a salad. Such practices are sure to result in disappointment. Owing to some of these causes I have never been able to prove a Strawberry obtained from a distance before the third year, but plants under my own management I can to a certainty prove in a year from planting. Some varieties, no doubt, are hardier than others, but that there can be such a difference in some kinds owing to soil, I hardly believe. I have frequently noticed a great defect in a plantation, while the same kind on the same soil but differently treated at planting was luxuriant. I recommend liberal manuring, keeping the soil firm, removing runners often, and taking particular care not to allow any young plant to establish itself near the old plant. The presence of such plants, and of the centipedes so destructive to some varieties of Strawberries, particularly in dry seasons, are perhaps more general causes of failure than the soil. Also encourage the production of fresh rootlets by adding well decayed manure in a very narrow trench between the rows, as recently advised in these columns. Those who pursue a course like this will find that many varieties will succeed well where they previously failed.

I cultivate upwards of sixty varieties, and except where one variety surpasses another in productiveness they seem to grow much alike. The soil is light.—A LANARKSHIRE BEE-KEEPER.

GOOD VARIETIES OF PEAS.

I SEND you a list of varieties which I have found succeed well here. They are exposed to all winds from the west and north-west, the situation is high, and the subsoil is clay. Ringleader comes in first, Laxton's Prolific following about ten days later if sown at the same time. This is a first-rate Pea, and it is extraordinarily productive; neither wind nor wet injured it last year, and we had plenty of both. I think this variety ought to be more generally grown, it is far better than Supreme. Yorkshire Hero is very good. Prince of Wales was the best liked at table both in summer and autumn; for flavour I question if it can be surpassed. Veitch's Perfection holds its own. I cannot do without sticks as I find I can obtain a great many more pods with sticks than without them. Here tall-growing sorts are unmanageable owing to the exposed situation.—H. K., *Shadwell*.

ICE-STORING.—No. 1.

ICE being now as much a necessity as a luxury, it is not remarkable that extravagant means are frequently adopted to secure a supply of it for the many domestic purposes both of summer and autumn. By digging a pit in the ground, not coolness is sought but freedom from the variable influence of the atmosphere, and uniformity of temperature around the ice. This plan, however, is not, I think, the best that can be devised, and I shall accordingly proceed to describe the one which might advantageously be substituted for it.

The essentials of keeping ice seem to me to be—1st, A perfectly dry site; 2nd, Dryness and non-conducting power in the surrounding substance; 3rd, Exclusion of air. The first will be secured by the perfect drainage of the ground forming the site, which should command a good fall and outlet for drains, as the top of a hill rather than a hollow.

Now, I propose to make the ice house a decent building; there is no need, therefore, to bury it in an out-of-the-way place, but a naturally dry site may be chosen in a commanding position, where it will either be visible at a distance, or afford a prospect, or combine both. It may be fully exposed to the sun instead of being in a shaded spot, sunk to the depth of 6 feet

or less, but, if the drainage cannot be made very efficient, not sunk at all, made in the form a parallelogram with the ends running north and south, and the entrance at the north end. If an excavation be made it should be 36 feet long, 22 feet wide, 7 feet deep at the south end, and 5 feet at the north, the sides being 1 foot lower than the centre, so that the excavation falls 2 feet from north to south, and 1 foot from centre to sides. If no excavation be made, then merely take out the soil to make a firm bottom, giving the inclines above named—*i.e.*, from the north to the south end 2 feet, and from the centre to the sides 1 foot.

Fig. 1 is the ground plan of such a structure; *a* is the ice house within which the ground has been excavated to a firm bottom. The drain *b* is brought to a small cesspool within the ice house, which must be covered with a stone into which is let a 9-inch ordinary stench-trap. The stone should have a dish from the sides to the trap of 4 inches, and channels cut for drains to deliver water on the trap, so that the water from the melting ice may always pass it before going to the drain *b*. *c*, The trap, will require a stone 2 feet square and 8 or 9 inches thick, and should have a dish of 4 inches, and channels made for drains that are to convey the water of the melting ice. The stone to cover the cesspool need not be more than 1 foot square and deep in side measurement, and should be surrounded by bricks laid in cement. It should be laid on the cesspool in a bed of cement, and when set should rise 3 inches above the level of the excavation. The trap being in the centre of the house or midway at one end, it follows that it would, were we not to lower the excavation, be 1 foot higher than the side drains *d*, *d*; let the excavation, therefore, be made 15 inches deeper at that point, and slope to that depth, beginning 6 feet from the trap in the interior and falling to the trap evenly. In this case the side drains will have 3 inches fall from the sides to the trap.

Let the floor be formed of bricks, beginning with a brick-on-edge all round, and next to this 3-inch drain tiles, which should be laid about 1 inch in the ground, or so that they are level with the bricks on the other side laid on the flat. The whole of the space within the drains should be laid with bricks on the flat, and when this is done a floor should be made sloping from the centre to the sides, and from the interior to the trap, having the bricks level with the drain tiles and trap. Into this will fall all water originating within the house, and thence into the main drain *b*. The side drain will come to the trap by the channels made in the stone. The floor should now be run with cement, removing the drain tiles and putting a board to keep the bricks in the proper position until the process is complete and the cement set, then the tiles should be relaid, and those on the trap should be run in cement and cut so as to suit the stone. When this is done no water can escape but to the sides, and thence away by the drains, but as bricks are porous it is well to brush the floor thrice over with cement brought to the consistency of paint. After this is thoroughly set place bricks on the flat, each brick isolated, with 3 inches between each course, and the same between the ends, which will leave spaces of 3 inches between each course, both lengthwise and crosswise. The light spaces are the isolated bricks on the flat, and the shaded parts the spaces. These bricks should be laid in cement, and be bevel-pointed round to keep them firm. These bricks will keep the ice off the floor, and will allow the water to run off.

e, *e*, *e* Are 9-inch walls, which should have foundations below the floor of the ice house, and a course below asphalted, and one above the asphalted course laid in cement. Along the spaces *f*, *f*, a drain should be laid, and join the drain *b* where that crosses the spaces. Outside the spaces is *h*, another drain, that is intended to keep away all water from the enclosed space, and is the only drain, except *b*, that is to be below the excavations. It should have a syphon just clear of the house to keep back any air that may find its way up *b*, and keep it from the drains in the spaces *f*, *f*, which should have syphons at their junction with *b*. *i*, *i* Is an area which will require a wall, *j*, *j*, all round to keep up the soil—4½ inches thick if an excavation be made not more than 2 feet, and 9 inches thick if one deeper than 2 feet. *k*, *k*, *k*, *k* Are 6-inch iron pipes that have one end opening in the space *f* at the bottom, and the other brought to the external air, and should there be provided with a screw valve that is driven on an indiarubber washer, and so as to exclude air or admit it at will. *l*, *l*, *l* Are tongued and grooved doors made of sound well-seasoned oak or elm. They should have oaken frames, with an indiarubber band all round, so that there will be little possibility of air passing. The fastenings of the doors ought to be brass, as iron corrodes and gets out of order. *m* Is a porch having a stone floor or other hard material that will do for breaking ice on when filling, and as a storage of any straw or straw shutters that may be required for stopping up the spaces between the doors *l*, *l*, *l*; *m* is also provided with a door in halves. With the exception of the outer door of the porch the door should neither be painted nor varnished.

Fig. 2 is section through A B, and shows *n*, the ice house, *o*, 9-inch space between the two 9-inch walls. It is provided with a 12-inch iron pipe, *p*, with two branches, each 6 inches in diameter, the ends of which are brought to the external air 6 inches clear of all substances, and closed or opened at will with air-proof valves. The pipes at the bottom of the space are drain tiles, and those immediately above them are those named in *fig.* 1, *k* (they not occurring in the section A B, are introduced to show their utility). The space *o* is, of course, filled with air, and therefore at the period when ice forms the external air will be considerably below freezing-point, whilst that of the space *o* will be above it. From the structure being 6 feet below the surface, it derives considerable heat from it, and will not be influenced readily by atmospheric changes. In the memorable winter of 1860–61 the temperature of the earth at 1 foot was never lower than 36°, that of the atmosphere falling to 3°. In a space of this kind we shall have a temperature at midwinter of not less than 43° to 45°; and as the ice in *n* will melt according to the temperature of the air it is surrounded by, and as it must derive its heat from *o*, we can by displacing the air in it, by opening the valves of *p*, let out air at 43°, and by those of *k* replace it with that at, it may be, 20°. In any case, at the time of filling the ice house, *n*, we should have in *o* a temperature below freezing, the parts surrounding being thoroughly frozen by the coldness of the air of *o*. Were *o* earth it would have a temperature of 40° to 43°, and the ice in *n* would be melted by the air heated by the higher-temperatured surrounding material, of which the heat will keep increasing, until in July it will be from 55° to 60°, afterwards gradually declining to the winter minimum of 43° to 45°. In our case, *o*, or the air in it, can also be warmed by the temperature of the surrounding substance: hence arises the necessity of enclosing it with a non-conductor. I propose, therefore, that we fill *q*, *q*, with very dry sawdust—kiln-dried, if possible, but not browned very much, and put in hard, it not being possible to make it too tight. The sawdust should be isolated from the ground at the bottom of *q*, making over the drain a half circle of "culvert" tiles to keep damp from rising and wetting the sawdust.

Above the ground line it will be seen that our arrangements as regards the exterior are of wood; in fact, we construct over the ice a summer-house, only we fill the interior with ice, and have seats, *r*, *r*, all round outside under cover of the roof; *s*, *s* is lined with deal battens, 4 inches by 3 inches, and covered with half-inch boards doubled; first one thickness close, and then the other upon them, so that the last boards will cover the joints of the first. The sides and roof are done alike, and to give a neat appearance the sides may have fixed on the outside larch poles, sawn up the middle, from which the bark is removed, and when dry varnished. The seats may be formed of like material, also the floor *t* over open area *u*. The supports for the projecting roof are larch poles barked and varnished, the bases of which are slightly elevated on stones, and dowelled in. The roof should be thatched with heather, a foot to 18 inches thick, and if this be done neatly we have a structure anything but unornamental, and invaluable for shelter from storm or heat, and as a resting-place.

But let us return to the interior. The roof of the ice well is of bricks disposed as a semicircle, the ends being also arched to meet the quarter circle of the sides. We do not place earth against the outer wall of the space, *o*, but sawdust, to bear the weight of the bricks composing the semicircle, the weight of which tends to cause the upright 9-inch walls to bulge out. One course below the striking of the arches is some strong angle iron, 3 inches on each side of the angle, and half an inch thick, one side of the angle to be placed on the wall, and covered with a row of headers, and the other side close on the face of the course of bricks on which it is laid. At every 3 feet along the angle iron, and on its exposed face, should be made a hole for an inch bolt, whose outer end must have a 2-inch solid socket, for which a 1¼-inch wrought pipe is prepared to screw on 2 inches. We have in building to put in clamps or straps of 3 inches by half an inch bar iron, with an inch hole 3 inches from the upper end, and the lower to pass through the wall at a foot above the foundation, and to turn up 3 inches

in the space *o*. We put straps in, of course, as the wall is built, and when the angle iron is put on we introduce the bolts through the holes in the straps, and also through the angle iron, securing them with nuts. The head of the bolt being screwed 2 inches, a 1½-inch socket pipe is screwed on, and its other end let into a stone, *r*, that must be on hard ground, which, if not naturally so, must be rammed until it is like iron. These provisions must be made on both sides, and at both ends, so far as doorways will admit. To keep the internal arch firm we place every alternate brick in the course of the outer arch wall on which the angle iron is placed, through far enough to reach the bricks of the other arch. The

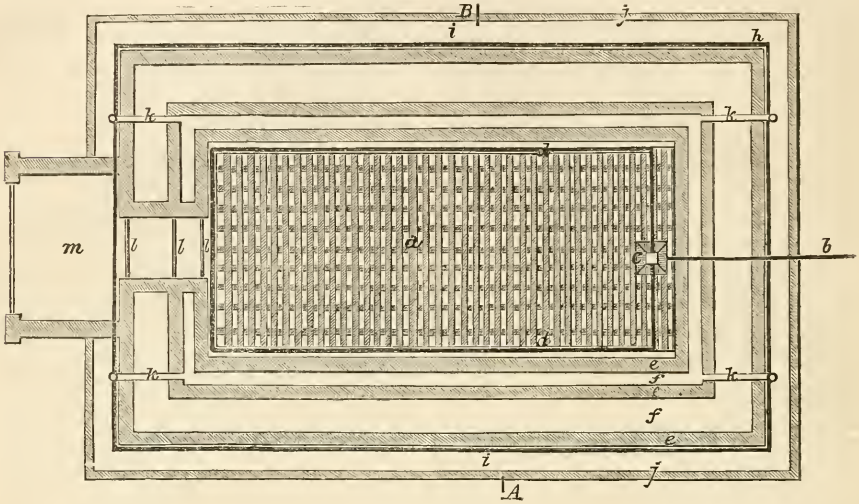


Fig. 1.—Scale 8 feet to 1 inch.

outside of the last arch, or that face next the sawdust, should be plastered with cement, and the internal one also, but inside.

The house as described will hold 172 cubic yards of ice when thoroughly filled, and will preserve it for a long time, though in order to effect this the doors must be closed, and the spaces between each stopped tightly up with dry straw or straw

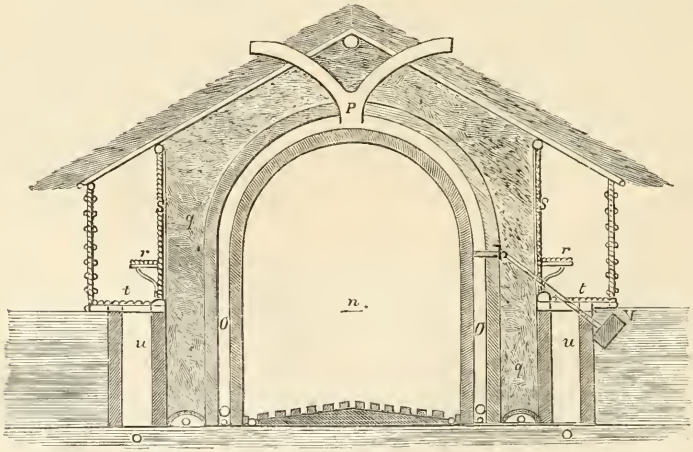


Fig. 2.

shutters, placing one against the other, when it is as safe for keeping as if it were hermetically sealed. It is surrounded with air at a temperature as low as that of the ice, and can derive no heat except through the 2-feet thickness of sawdust The valves are to remain closed, for it is necessary that the air in o be kept still, and to open them would only admit air of a higher temperature. If, however, after filling the house with ice, the weather should be mild for a time, and then be followed by a severe time of frost, it will be judicious to open the valves, and, displacing the air in o, replace it with that at a lower temperature. The valves should be closed when a minimum has been secured, and should not be opened again until

the return of frost the following autumn, when air at a temperature below freezing should be admitted.

Nothing is so detrimental to ice-keeping as constantly opening the doors. It should only be occasioned by necessity, and the doors should be closed after the person visiting the ice chamber, so that as little as possible of the outer air may be allowed to enter, and in coming out the like care should be bestowed on closing the door.—G. Abbey.

CARYOTA EXCELSA.

The subject of our present illustration is a member of perhaps the most distinct genus belonging to the natural order Palmaceæ, inasmuch as it is the only genus which has bipinnate, or, in other words, branching leaves. There are other genera, such as Wallichia and Martinezia, which may be mistaken for Caryota when the plants are in a young state, but as they increase in size it is utterly impossible to confound them with any other family; for while the leaflets of Palms as a rule are long and narrow, tapering upwards and becoming narrowest at the apex, those of Caryota, on the contrary, are very broad at the ends, present the appearance of having been bitten off, and taper downwards towards the base. All the species of Caryota are natives of India or the islands of the Indian seas, and some of them are of immense value to the natives, supplying them with sugar, sago, toddy, and many necessaries of life; and the "kettul" fibre of commerce is also derived from one or more species of this genus.

In a decorative point of view, Caryotas are exceedingly beautiful, especially if sufficient space can be afforded them to develope their beauties, and this is not so very difficult; for although some of the kinds become trees with stately stems 50 or 60 feet in height, there are others that never exceed 18 or 20 feet. In a young state Caryotas are admirably adapted for the decoration of the dinner-table, and also form beautiful objects distributed throughout the various apartments during the summer months, but during the winter I should scarcely advise them to be kept in rooms unless these are slightly heated. When larger they may be plunged in the open air in summer, to assist in giving the pleasure ground a tropical appearance, but, of course, the practical common sense of the gardener or amateur must be brought into play, in selecting a sheltered nook or dell to enable it to withstand any sudden change of temperature, which often, in fact too often, as we frequently find to our cost, occurs with us even in the most favourable seasons.

Caryota excelsa.

This plant, of which we have now the opportunity of giving a portrait through the kindness of M. Rothschild, is one of the best of the genus for decorative purposes, and will amply repay any amount of labour which may be bestowed upon it. It will not fail to give equal satisfaction to the possessor, whether grown in the drawing-room, or in the stove, or used in the open air; in all of these situations it will produce a grand tropical effect, which is always so highly appreciated by lovers of the beautiful in Nature who live in temperate climes.

As a compost for Caryotas, I use good rich loam and leaf mould in about equal parts, with the addition of a little sharp river sand. The pots should be well drained, and during the summer a liberal supply of water should be given. If the plants are kept in the stove during the winter, still continue to supply them freely with water, but this must be given more carefully if the plants are kept in a low temperature. As a rule Caryotas are not easily propagated except by seeds, but they occasionally send up suckers from the base, which should be removed as soon as large enough, potted in some sandy loam, in as small-sized pots as possible, and plunged in a gentle bottom heat until well established.—Experto Crede.

GROS COLMAN GRAPE.

Having seen at page 102 a few notes by Mr. Rivers on this Grape, I wish to state that for the last twelve years I have had ample opportunities of testing its qualities, and I have come to the conclusion that there are few varieties to equal it, not to say surpass it, as a fine late-keeping Grape of excellent flavour. The Vine is of a vigorous strong habit, and a free bearer, both on its own roots and grafted on the Black Hamburgh.

The chief point in the treatment of this variety is to have the fruit ripened early, and in planting I would place it next to the Muscat of Alexandria, then after the Gros Colman I would have Alicante. Gros Colman will compare favourably even with

Lady Downe's for keeping, and in flavour is superior. It will also colour well even without fire heat, which is another point in its favour. I have had it planted in a cool house, but there it is not so much at home, still even in such a house it will do better than many other kinds. The fruit, like that of the Alicante and Lady Downe's, requires to hang, as Mr. Rivers describes, till fully ripe.

Those about planting a vinery for a supply of late Grapes will find the Gros Colman, Madresfield Court, Alicante, Lady Downe's, and Muscat of Alexandria the best varieties for the purpose. A few other Grapes hang well, but I question if there are five to equal these, which are sure croppers, large in bunch, fine in berry, good keepers, and, above all, of strong constitution.—Stephen Castle.

BLUE-FLOWERED HYDRANGEAS.

As we were on a visit to Jersey in company with our colleague and fellow-worker, Dr. Eug. Fournier, we saw some fine blue Hydrangeas in the terraced gardens of the Hotel Royal, the colour of which was a beautiful ultramarine, and distributed in a wonderfully even manner. We noticed that there were some rose-coloured heads among the blue ones, but these were upon much less vigorous subjects. As the blue colouring was always in direct proportion to the strength of the plant, one reasonably comes to the conclusion that the substance which imparts the colour acts at the same time as manure upon the soil, that rose is the colour peculiar to the Hydrangea in a low state, whilst blue would be that of it in a natural or overfed one. The blue colour of Hydrangeas arises from the mixture of certain matters with the soil, and it is upon this practice that the following remarks bear.

In 1857 Mr. Luscombe showed some splendid blue Hydrangeas, which had been grown beneath a group of Firs in the soil formed by their decayed leaves, and by so doing threw open a new field for inquiry, as it had hitherto been thought that blue Hydrangeas could only be produced by means of the following substances, and even then in different degrees:—Lime water, chalybeate water, common red sand, Norwood loam, water in which red-hot iron had been plunged, solution of alum, and iron filings.

To the presence of iron in solution, of lime, and of alum, the action of the above-named materials was thought to be due. Professor Solly, however, proved on trial that lime, alum, or iron, made more soluble by means of hydrochloric acid, or less so by carbonate of soda, were of but little use for colouring plants of the Hydrangea genus; whilst Mr. Fortune, who was unable to obtain blue Hydrangeas by the employment of pure iron, did so by means of alum diluted in water. Now, neither in peat earth nor leaf mould is there any alum to be found. The only explanation of the effect of these soils is that the tannin which they contain is acted upon by the peroxide of iron in the tissues of the plant. The experiment which Dr. Lindley formerly advised can be made by supplying the plants first with water impregnated with peroxide of iron, and then with a weak infusion of tannin.

This, however, is only one side of the case. In 1861 another Englishman brought out the idea that Hydrangeas, so long as they were grown in virgin soil, could be had blue in all sorts of earth. He tried various ways of growing them, and whether it was in an ordinary garden soil or a new and turfy one, the upshot was always the same during five years. Moreover, a plant with rose-coloured flowers and placed in common garden soil, no sooner had reached with its roots the virgin soil which lay underneath, than it began to produce blue corymbs. On the other hand, it is well known that Hydrangeas take on a deep blue colour in granitic, schistose, mica-schistose, and other soils of an igneous origin.

Thus the matter lay, and some new trials of M. A. Gris had thrown but little light upon it, when M. Eug. Fournier set himself to work out some essays in consequence of a dispute which had arisen on this subject at a meeting of the Botanical Society of France. He watered some rose-coloured varieties of Hydrangeas daily, and with equal quantities of the following solutions, beginning on the 1st of May.

1. 20 grammes of ammoniacal alum to a litre of distilled water (175.3 grains to an imperial pint).
2. 20 grammes of sulphate of iron to a litre. Suggested by Dr. Boisduval.
3. 20 grammes of carbonate of copper. Suggested by M. Crockard.
4. Ammonia, quantity not determined.

On the 15th of June, those plants to which ammonia and carbonate of copper had been conveyed by means of water, perished; those treated with sulphate of iron showed decent strength and rosy sepals; whilst those to which the ammoniacal solution of alum had been applied bore a luxuriant growth and large flowers of a violet blue. Of the other experiments made by M. E. Fournier we can speak no further here, but they all tend to show that if iron colour Hydrangeas blue under certain conditions, it also possesses the power of promoting growth like ammoniacal alum. The true cause, therefore, of the blue colour of Hydrangeas is an excessive growth artificially obtained.—(*L'Illustration Horticole.*)

THE GLASTONBURY PEAR.

A few more words may strengthen your opinion, and then I shall have no more to say, I hope, on the Glastonbury Pear until the autumn, when the question ought to be finally settled.

There can be no mistake about the three shoots I sent you—they are one sort—my letter, which was posted the same day, fully explained how they were grown. The balance of opinion points to its being Brown Beurré. On referring to Mr. Scott's descriptive catalogue to the "Beurré, Brown" Pear, every remark there equally applies to the Glastonbury Pear; and had I known Beurré du Roi and Beurré Rouge were the same variety under different names, I should never have troubled you with this discussion.

Many years ago Mr. Chapman told me he had seen his Pear figured in an old work with only one name, Beurré du Roi, and to this day he calls it by that name. You may well ask, Why did I not mention this before, or in 1865? I had forgotten all about it, and it was the reference to Scott's catalogue that recalled it. I have seen the work; it is Batty Langley's "Pomona." Batty Langley was an advanced gardener. He recommends the Quince stock for Pears, Paradise for Apples, root-pruning, and many other practices which I thought modern. On looking over many of my trees, I find on the wall all the shoots are mahogany-coloured and slightly freckled, the smaller shoots on pyramids slightly coloured red and more freckled. If we had had a warm summer to ripen the wood on standards, the wood would have been mahogany-coloured. —John Albert Porch.

SERICOGRAPHIS GHIESBREGHTIANA.

This is a plant more easily managed than its name, and may be grown in a greenhouse. I raised a cutting two years ago in a sunny window, and kept it in a very poor greenhouse after near the window, but the early frost of October, 1870, made it drop its flowers. This year, as soon as I saw flower-buds, I removed it to the middle of the greenhouse, and about a month ago I brought it into a sitting-room. It is now in full flower, being 4 feet high, and each branch with four sets of flowers springing from the base of each remarkably handsome leaf, with which its bright scarlet flowers form a fine contrast. No doubt it could be better grown with a little more heat, but to lovers of flowers, especially in winter, it would form a pretty addition to a greenhouse.—Mary, *Devon.*

DEATH OF MR. WILLIAM RAYNER.

It is our painful duty to have to record the death of Mr. William Rayner, surgeon, on the 26th of January, in the 71st year of his age. Mr. Rayner was a native of Uxbridge, and resided the whole of his lifetime in the town, where he gained a high reputation in his profession, and the respect of a large circle of friends, by his rare intellectual talents and active zeal in every work he considered calculated to promote the interests of the town and its inhabitants. The study of his profession, to which he was devotedly attached, was the chief business of his life. He was a frequent contributor to the *Lancet* and other medical works; his leisure hours were given to the study of natural history, ornithology, entomology, and botany. On these subjects he furnished a series of papers, which were published in the "Cottage Gardener," and which possessed great merit from the popular style in which they were written. Some years ago he prepared a series of lectures on his favourite subjects, which he delivered in Uxbridge, Windsor, Staines, and other towns; these lectures were highly attractive, interesting, and full of useful information; they were profusely illustrated with diagrams and drawings, in the preparation of which a great amount of labour, skill, and time must have been bestowed, in which he was greatly assisted by his talented daughters. He

took great interest in the literary societies of the town, and none ever flourished so well as when he was secretary, some years ago.—(*Uxbridge Marvel.*)

A SOJOURN IN THE HIGHLANDS OF SCOTLAND.

(*Continued from page 59.*)

The fifth day we intended to make a day of comparative rest, being somewhat tired by our Malgurdie excursion the day before. We sauntered about and made ourselves better acquainted with Killin and its surroundings. "Killin" says Dr. McCulloch "is the most extraordinary collection of extraordinary scenery in Scotland, unlike everything else in the country, and perhaps on earth, and is a perfect picture gallery in itself, since you cannot move 3 yards without meeting a new landscape." This is a somewhat overdrawn statement, but true to a certain extent.

There is certainly a great variety of scenery; even the two rivers are different in character. The Lochart comes into the town dashing over rocks, a noisy and boisterous stream; the Lochay silently flows on, and both are wedded together in the placid Loch. The Lochart, as it enters the town, divides into two streams with an island between them; this island is covered with large Scotch Firs, and, we understood, was the burial-place of the MacNabs, but it is a long time (seventy years) since a funeral took place there. The island wore a gloomy and weird aspect.

We were recommended by a friend to call upon Duncan McKye, who sometimes goes out with plant-collectors, and who acted as guide to Professor Balfour and his Edinburgh botanic pupils on the last visit, a few months before we were there. We had a long chat with McKye, who finally accompanied us to the margin of the Loch. We passed the burial ground of the Breadalbane family; it contains the ruins of an old castle, and a handsome mausoleum, in which the late Marquis was laid about two years ago. We saw some magnificent trees, and measured one Silver Fir, 14 feet in circumference, at 4 feet from the ground. We met with thousands of Asplenium Trichomanes, but looked in vain for varieties. We, however, bagged a good form of Asplenium Adiantum-nigrum, and some fine foliaceous Lichens. We afterwards went some distance on the Ben Lawers road, and found Cystopteris dentata and fragilis, also Asplenium Adiantum-nigrum in abundance. We followed a stream up the mountain for about 10,000 feet, but found few plants of much interest. We returned to Killin about eight o'clock.

The morning of the sixth day was gloriously fine, and the mountain summits stood out in bold relief against the sky; even Ben Lawers, the monarch of them all, greeted us bareheaded. Everybody said it would be fine, and we were so confident ourselves that we did not deem it necessary to consult the oracular fat lady, who had proved so true a prophetess a few days before. As we calculated on making good bags, we engaged Duncan McKye to accompany us. We ascended the mountain (Craig Curich) from the Lochay valley, a much longer but a somewhat easier route. We climbed the steep vigorously, then over miles and miles of heather, and at length reached the rocks, and our sport began. The following are a few of the many specimens which we saw and gathered; Saxifraga aizoides, everywhere; S. stellaris, sparingly; S. hypnoides, not plentiful; also a form of it, very like S. platypetala, which we could not determine without inflorescence, and S. oppositifolia, very abundantly; on reaching the cliffs our excitement was intense. The Saxifraga nivalis was somewhat plentiful. To gather this child of the everlasting snow—for it is seldom found much below the perpetual snow-line—is a botanical achievement of no mean order; we had gathered it once before, near the summit of Snowdon about 1855, and its appearance here awakened in us a flood of pleasing recollections. Festuca vivipara was everywhere dangling its long viviparous panicles from the rock; Thalictrum alpinum, plentiful; Lycopodium alpinum, Selago, and selaginoides were also there, likewise the rare Dryas octopetala, Arbutus Uva-ursi, and the two little arctic Willows, Salix herbacea and reticulata. Mr. Mitchell's daring exploits in climbing were rewarded by three plants of the rare Woodsia ilvensis; this was a botanical triumph of the highest order, and we rejoiced greatly at it, as we considered it the best find of the day. Professor Balfour and his thirty botanical pupils had gathered a solitary plant on these cliffs some months before; McKye pointed out the exact spot where the professor had his find. We saw many other rare plants, which we cannot stop here to notice. Our main object was to secure a goodly quantity of the rare Polystichum Lonchitis; this we succeeded in doing, and quitted the cliffs with full bags. We lingered so long on these alpine cliffs that it was dark when we got down to the wooded part of the mountain; but under the guidance of Duncan we finally found the road; and reached our quarters about nine o'clock, much fatigued but highly delighted with the successes of the day.

The morning of the seventh day was very fine; we had asked McKye the day before if he knew the exact spot where the Cystopteris montana was found; he said it was over the shoulder of Malgurdie, in Glenlyon. Mr. Mitchell, full of botanical ardour, resolved to go to the habitat, provided McKye would go with him; to this Duncan agreed, and they started at an early hour in the morning. We accompanied Mr. Mitchell and McKye as far as the bridge over the Lochay, for the purpose of gathering the Lastrea spinulosa, which we had found on our first ascent of Craig Curich. After gathering a sufficient quantity we took a walk up to the bridge over the Lochart, which affords one of the finest views in Scotland.

We rambled down a lane parallel with the river, and soon found the rare Cystopteris furcans. "We would wager," said we to ourselves, "that this is the very habitat in which Mr. H. S. found the plant this summer." We have since ascertained that this was the fact. Just think of our being told that a little plant, not more than 2 inches high, had been found in Scotland without any indication where, and our going and finding the identical habitat! This was a piece of good luck, which no one could possibly have thought would occur.

We went along the road parallel with the Loch for some miles, and then along the margin of the Loch to see what aquatic plants there were in its waters, but we saw nothing except a few lacustrine Sedges of no special interest.

We then ascended some of the hills south of Killin, examined thousands of Lastrea montana, but found no varieties, and returned to the town in the evening. Mr. Mitchell and McKye came back about ten o'clock. They had found some plants of the rare Cystopteris montana in Glenlyon, but were very much fatigued with the long and rough journey. We soon got tea, and then to bed.—(*Extracted from Mr. Stansfield's notes read before the Todmorden Botanical Society.*)

(To be continued.)

ICE-STORING.

In reference to "R. F.'s" communication to you on ice-storing in the Journal of December 14th, page 469, I find, or at least I think, with respect to stacking, that "R. F." writes so as to mislead or discourage those who, like myself, may not have the good fortune to be provided with an ice house. Having had a good number of years' experience in storing ice, both in houses built for the purpose and in stacking, my own experience in this simple matter in the latter case may not be out of place. I will, therefore, give it for the benefit of beginners who may not be better provided for, and those who might wish to enjoy the luxury of iced wines and dishes—to say nothing of the pleasure afforded in giving a piece of ice to assist in alleviating the sufferings of a fellow creature when laid on a sick bed.

Our mode of proceeding is one that has been carried out for a considerable number of years, and is attended with the very best results. After getting the ice in proper working order, and the weather continuing frosty, we begin to take it off the pond and cart it home to the stack, which is built on level ground, but has the advantage of being shaded by trees and bushes from the strong sunshine. We begin the stack by emptying the carts on its foundation; after which there are plenty of hands ready to begin pounding the ice with light wooden mallets sufficiently small to pack all large pieces firmly, thereby excluding from the interior of the stack as much air as possible; this should rather be a little over than under done. I retain the people on the stack pounding away till the whole is finished, and as the ice draws towards a point, one or two drop off as the room for working becomes less, and begin breaking the ice at the bottom before throwing it up to those who remain. As the work proceeds we now and then throw a quantity of water over all, so as quickly to congeal the whole into a solid mass.

We stack in this way from 100 to 110 cartloads every year, and it keeps perfectly well over twelve months, sometimes for a longer period, and we have to open the stack nearly every day during summer.

Before covering-up, if the weather will allow us, we leave the

stack exposed at least twenty-four hours to the frost; if otherwise, we cover it at once. For covering we use dry wheat straw, than which I consider nothing is better; covering not to the depth of 18 or 24 inches, however, but to 18 at least, and all put on at once. We leave no air-pipe through it, and we have no trouble in consequence of its heating or fermenting. We leave the whole in a conical shape, neatly strapped down to carry off the rain. This may be thought a waste of straw by some, but I have found no less thickness of thatching will enable us to attain our object. The straw, however, will not be altogether lost, as a farmer will know well what to do with it, after it has done duty on the stack, when he has his cattle in the fold.

I have no faith in having only twenty or thirty cartloads in a heap, however well protected and stored, or even in a house. My experience is that it is work in vain. Nor would I advise collecting a less quantity than a hundred loads for a stack, if ice is required all the year.

Up to this date (January 29th) the weather has been so open that we have been unable to secure our ice for the season.—J. Fairweather, *The Gardens, Balnagown Castle, Ross-shire, N.B.*

"LES PROMENADES DE PARIS."

One of the most important of the works carried out by M. Alphand in the Bois de Vincennes, was the transformation of Plain of Bercy into the Lake of Charenton. In the centre of this plain, in a valley artificially excavated, an immense

Fig. 1.—Rotunda and Grotto—Isle of Reuilly.

sheet of water covering 120,000 metres has been formed, and its two islands, Bercy and Reuilly, are covered with plantations of large valuable trees, which are of the deciduous and resinous character, and which have been transplanted by means of the tree-lifter. There are also numerous clumps of shrubs and flowers, jetties of easy access to the pleasure boats, two suspension bridges, a rotunda, and grotto (*fig.* 1), a cascade, extensive green swards, pleasing views obtained by piercing vast avenues, and numerous gravelled paths—the whole forming a combination of light and shade, and an example of modern landscape gardening which cannot be surpassed. *Fig.* 2 is a view of the lake taken from the rotunda.

THE FUCHSIA.

It is remarked by the elder class of gardeners that the small and sometimes ill-constructed greenhouses of their younger days often contained a greater number of species of plants than we meet with in the much larger and more

pretentious conservatories of the present day. At that time botanical distinctions rather than floricultural ones were relied on, and a Zonal Geranium was a Geranium and nothing more; while Heaths, Mesembryanthemums, and other genera presented distinctions of a truly permanent character, many of them of a kind that was easily distinguished at all seasons; but fashion of late years has contented itself in a great measure with varieties, so the Geranium and other favourite ornaments of the conservatory have been so divided and subdivided into sections as of themselves to almost fill the house, to the exclusion of other and more enduring members of the same half-hardy family. In other words, the range of cultivation is narrowing,

Fig. 2.—View of the Lake of Charenton taken from the Rotunda.

and I much regret that the compilers of schedules for our great shows do not take means to prevent this by offering prizes for outside objects. I do not mean by that to confine the observation to out-door subjects, but for plants and products seldom met with at shows.

Take, for instance, the Fuchsia. A writer in your number for January 25th very creditably put forth a number of names embracing the best varieties that are known, with some useful observations on them; and although he mentions many names that are strange to me, I fear there are none amongst them that represent the botanical species of Fuchsia, as F. corymbiflora, fulgens, microphylla, and similar kinds, which cannot possibly be mistaken for the hybrids on which cultivators at the present day bestow the whole of their patronage. If I had the framing of a schedule I would make it incumbent on the exhibitor of six kinds to have these three; there would then

be dissimilarity so far as they went, and there are other kinds as well that might be brought into use. Perhaps it may be urged that F. corymbiflora makes a bad specimen plant, but it may, nevertheless, be worked into order.

Many years ago I remember seeing one of the finest flower beds I ever saw, composed entirely of this species, the plants being 7 or 8 feet, and F. fulgens upwards of 6 feet high, and equally well loaded with bloom. The old F. microphylla is rarely met with now, also many other old Fuchsias; but I do know of a plant house where a considerable part of the back wall and some of the roof is covered with that fine variety F. coralina, which flowers more profusely than any of the newer kinds. In the same house F. corymbiflora occupies parts of the rafters, and produces handfuls of its long tubular flowers, so that I often wonder it is not more frequently met with in a like position.

I hope an attempt will be made by some horticultural Society to restore these and other old favourites from the neglect in which they will otherwise soon be buried; those old enough to remember the flourish of trumpets with which these two large-leaved Fuchsias were ushered in, cannot but grieve at the careless way in which they are now treated, while many plants of much less import have usurped their place. I hope those having the arrangement of our great horticultural shows will see to this, and if they can do nothing more in altering their schedules, they might add as a condition to the prize for six, eight, or more Fuchsias, that botanical distinctions and great dissimilarity will be indispensable in order to insure greater variety in this family than has lately been the case. Perhaps Mr. Boothby will be good enough to tell us how far this can be done with advantage.—J. R.

BLACK BESS STRAWBERRY.

Your correspondent, "J. T., *South Wales*," makes inquiry about this Strawberry. I think I can tell him its history. Eight years ago, when gardener to the late S. Rickards, Esq., Shalimar, Acton, who was a Strawberry lover, he bought from Messrs. Butler & McCulloch, of Covent Garden Market, one dozen small plants, telling me, I think, that the kind was raised by Mr. Webb, Calcot, Reading. I planted them in a well-prepared border, and the following summer I layered all the runners in small pots. I had about two hundred of them planted out for fruiting, the rest I potted for late forcing. Those planted out were truly magnificent, bearing from forty to fifty noble fruit on each plant. On many occasions my employer had the small letter-scale brought on the dinner-table to weigh the Strawberries, and I have seen them often weigh down an ounce weight and a shilling. I sent twelve plants for trial to the Royal Horticultural Society's Garden, when the Fruit Committee thought them identical with Empress Eugénie, an opinion which I never shared. Some of the first fruit are flattened or ridged, but the general crop is conical, of a particularly attractive colour, sweet, and refreshing. The potted plants were grown in front of an orchard house and did well.—R. Gilbert, *Burghley*.

REVIEW.

The Gift of Life. A Book for the Young. By Sara Wood. Author of "Children of Other Lands," &c. London: Groombridge & Sons.

The intention of this book—and the intention is realised—is to show children that God is "near them *here*, and with them *now*, giving and sustaining life." In a succession of chapters is shown that Life is everywhere; that it is a great good; how it is sustained; the use of the senses; the need of heat, air and light; the varieties of animal and vegetable life, and many relative topics. It is a wholesome book, and the contents are in simple language that a child may understand.

NOTES AND GLEANINGS.

During last year 3,351,106 eggs and 852,125 cwts. of Potatoes were imported into this country.

—— Mr. William Woolley, gardener to Sir W. Jackson, Bart., Claughton Manor, Birkenhead, died on the 26th ult., aged 54. He was a frequent and successful exhibitor, and was much esteemed in his situation, which he had held for seventeen years.

—— Mr. G. J. Symons, of 62, Camden Square, N., writes to the *Times* on the Rainfall of January:—

"It would be premature to express a decided opinion on the distribution of the excess which has fallen last month; but there seems little probability that additional returns will modify the following deductions:—

"1, The fall at all English stations is greater than the average; 2, The excess is greater at the southern stations, some of which have had more than twice the usual amount; 3, In Scotland, the southern part has had a slight excess, but in the north about the usual quantity has fallen; 4, In Ireland, although at one station the aggregate amount is below the average, it has rained almost every day."

Total Rainfall During January, 1872.

Depth. In.	Name of Station.	County.
21·90	Mardale Green, Hawes-water	Westmorland.
19·25	Easdale Tarn, Grasmere	"
18·01	High Close	"
17·50	Loughrigg Fell	"
15·75	Measandbecks, Hawes-water	"
11·74	Cowsby Ravensworth	"
11·32	Sharrow Bay, Ullswater	"
10·70	Buckden, Skipton	Yorkshire.
10·50	Swarthfell, Ullswater	Westmoreland.
10·39	Garthbibio	Montgomery.
10·18	Bodmin	Cornwall.
9·35	Okehampton, Dartmoor	Devon.
8·88	Skiddaw	Cumberland.
8·70	Llangurig, Llanidloes	Montgomery.
7·62	Willersley, Matlock	Derbyshire.
7·50	Carno	Montgomery.
6·90	Llanwddyn	"
6·35	Dumfries	Dumfriesshire.
6·04	Great Missenden	Bucks.
5·83	Lymington	Hants.
5·82	Holsworthy	Devon.
5·53	Deanston	Perthshire.
5·15	Cessnock Park, Glasgow	Lanark.
5·12	Ballinasloe	Galway.
4·83	The Castle, Taunton	Somerset.
4·58	Linton Park	Kent.
4·55	Bickenhill Vicarage	Warwick.
4·50	Merridale Road, Wolverhampton	Stafford.
4·46	Tytherton, Chippenham	Wilts.
4.25	Cambo House, St. Andrew's	Fife.
3·80	Westfield, Dundee	Forfar.
3·46	Camden Square, London	Middlesex.
3·45	Monkstown	Dublin.
3·34	Killingholme, Grimsby	Lincoln.
3·10	Gainford, Darlington	Durham.
2·89	York	Yorkshire.
2·78	North Shields	Northumberland.
2·74	The Lodge, Sandy	Bedford-hire.
2·72	Diss	Norfolk.
2·63	Portarlington	Queen's County.
2·45	Nairn	Nairn.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Sow, on a gentle hotbed for pricking-out, *Cauliflowers*, *Red Cabbage*, some Early Horn *Carrots*, and hardy *Lettuces*. Sow a pan of *Celery*, and place it in heat. Make a small sowing of Early Dwarf York *Cabbage* on a warm border, and fill up all vacancies in Cabbage and Colewort beds. The surface should be constantly stirred. The ground intended for *Onions* would be benefited by a top-dressing of well-decomposed rich manure, which should be forked-in. When the soil is in a suitable state sow a succession of *Peas* and *Beans*, and between the rows of Peas try a row of Round *Spinach*. *Cauliflowers* under frames and hand-glasses should have attention in giving air, removing decayed matter, stirring the surface, and placing dry earth or charred refuse amongst the plants. Pot a few of the strongest in healthy sandy soil for planting-out. Sow a succession of *Radishes* on a sloping bank or border. Let a dozen roots of *Parsley*, or more, according to the demand, be potted immediately and placed in a vinery at work; when the plants are well rooted supply them liberally with clear manure water. Place a few Ashleaf Kidney *Potatoes* in heat to forward them for planting out when the soil is in a fit state.

FRUIT GARDEN.

Proceed with the pruning and nailing of wall fruit trees when the weather is favourable, and when it is not so prepare material for protecting the blossoms. Pruning Vines out of doors should be at once completed. Cut out old wood from Raspberries, and cut back canes not wanted for fruiting; replace decayed stakes, and tie the fruiting canes neatly to them. Dress the ground with light manure. The thinning and pruning of trees in the orchard may still be continued.

FLOWER GARDEN.

A well-kept lawn is one of the most beautiful features in English pleasure-grounds, but on rich soils the coarse Grasses are difficult to keep under; while on soils naturally poor, and

which have been for some time under the scythe, mosses are found to increase so much as to injure the better sorts of lawn grasses. This is the best time to eradicate them, and a sharp-toothed iron rake or light drag is the best implement for the purpose. It should be worked sufficiently to bring up the moss, which must be cleared off and the lawn left for some time, when the operation may be repeated if necessary. Sow thickly in March Sheep's Fescue Grass and Crested Dogstail, and apply a dressing of sifted lime rubbish and fresh soil, or the latter and fine bone dust. Roll occasionally to keep the ground firm, and a good sward will soon be obtained. Prepare ground for Roses, and if it is poor remove as much soil as possible, and replace it with equal parts of rotten dung and loam. Roses to flower in perfection must have rich soil. Prune stocks budded last autumn, leaving 6 inches of the shoot above the place where the bud is inserted; this portion of shoot will serve as a support when the buds form young shoots in the spring. Prepare for planting Ranunculuses, and if any frosts occur give the bed a turn. There has been so little frost lately, that exposure of this kind has been impossible. Prepare the roots for planting by removing all that are small; these should be immediately planted by themselves, and as but few will flower this year, they will gather strength and size for the next. In arrangement, diversify the colours as much as possible. Examine carefully the stock of Carnations and Picotees, remove every appearance of spot, and if the plants exhibit symptoms of disease, let them be placed apart from the healthy stock. Tulips, Pinks, and Auriculas will require similar treatment to that lately recommended.

GREENHOUSE AND CONSERVATORY.

The conservatory should now be gay with Camellias, Heaths, and Epacrises, Hyacinths and other bulbs from the forcing pits, tree and Neapolitan Violets, Mignonette, Epiphyllum truncatum, Euphorbia jacquiniæflora, Luculia gratissima, Begonias, and, of course, Azaleas, Lilacs, Rhododendrons, and some of the freer-blooming Chinese and Bourbon Roses. Keep a mild slightly humid atmosphere of from 40° to 55°, recollecting that the colder the exterior atmosphere is, the less necessity there is for maintaining a high in-door temperature. In the mixed greenhouse avoid any approach to a high artificial temperature. Place neat trellises to the Tropæolums that are not already furnished with such. Attend in good time to the training, commencing to furnish the bottom of the trellis bountifully; the top will be covered readily enough. The Kennedyas, Zichyas, Hardenbergias, and Gompholobiums should have particular attention in regard to trellises and training; young vigorous plants of Polygala, Muraltia, Pultenæa, Oxylobium, Dillwynia, Eriostemon, Chorozema, Hovea, Leschenaultia, Pimelea, and Epacris, &c., should have all their strong shoots stopped in due time, in order that the plants may form good specimens. Where valuable plants are kept, a stock of the various kinds of loams and peats should always be kept in readiness for potting. For all potting purposes a soft, sandy, yellow loam is to be preferred. Such should have been dug not more than 6 inches deep, with the turf, and after having been stacked long enough for the grass to decay it may be considered as fit for use. Silver sand, rotten leaves, and dry well-rotted cow dung, are all necessary ingredients in different composts. The best peat for Heaths and hardwooded plants is that from Wimbledon and Shirley. With these soils, clean dry pots, crocks of various sizes, and dry moss, potting will go on without interruption. As it is not good practice to water heavily immediately after potting, see that the roots are more moist than dry when turned out. This is more particularly necessary with Heaths and all plants growing in heath soil. Plants should likewise never be potted and cut back at the same time, but the heading-back should precede potting by a sufficient length of time to enable the plant to begin a fresh growth.

STOVE.

If mealy bug exists here, even to the slightest extent, never cease to wage war against it as long as there is the least sign of the insect to be discovered. Perseverance now in this respect will save weeks of toil and annoyance at a season when there is less time to attend to them. After all, perhaps, the sharp eye of a practised workman, with a small brush and copious syringing with tepid water, is the safest, if not the most expeditious, means of banishing these pests. Temperature from 55° to 65°, or lower if the weather is severe.

COLD PITS OR FRAMES.

Frost and damp will, doubtless, have reduced the numbers of some kinds of plants; therefore pots of "stores" which became well established in autumn—such as Verbenas, Fuchsias, Petunias, Heliotropes, Salvias, Calceolarias, &c.—should be removed forthwith to some of the houses or pits to enjoy, if possible, a moderate bottom heat, watering them with liquid manure. These will quickly furnish an abundance of early cuttings, which should be slipped off and propagated at once.
—W. Keane.

DOINGS OF THE LAST WEEK.

KITCHEN GARDEN.

Wet, and still wet. Even now it is astonishing what good will be effected by a little surface-stirring of the soil among Cabbages, Cauliflowers, Lettuces, and other crops, if a few dry hours can be obtained for the purpose. All forced vegetables have been very good.

FRUIT GARDEN.

See previous notices, and let beginners be careful that in this dull weather Strawberries are not overwatered.

ORNAMENTAL DEPARTMENT.

We swept and rolled the walks to keep them firm on the surface. We also looked over plants, taking off every decaying leaf, and made arrangements for putting in numbers of cuttings.—R. F.

[We regret that illness prevented our reporter writing more fully.]

TRADE CATALOGUES RECEIVED.

William Paul, Waltham Cross, London, N.—*Seed Catalogue*, 1872.

Th. Van der Bom, Oudenbosch, Netherlands.—*Catalogue of Trees and Shrubs.*

James Vick, Rochester, New York.—*Vick's Illustrated Catalogue and Floral Guide.*

Robertson & Galloway, 157, Ingram Street, Glasgow, and Helensburgh.—*Descriptive Seed Catalogue and Amateur's Pocket Guide.*

Sutton & Sons, Reading.—*List of New and Choice Seeds for the Vegetable and Flower Garden.—Select List of Choice Seed Potatoes.*

B. R. Davis, Middle Street, Yeovil.—*Descriptive Catalogue of Vegetable, Flower, and Agricultural Seeds, &c.*

S. Dixon & Co., 48A, Moorgate Street, London, E.C.—*Select List of Vegetable and Flower Seeds, &c.*

Little & Ballantyne, Carlisle.—*Spring Seed Guide.*

Robert Bowie, 22, Maxwell Street, Glasgow. — *Descriptive Catalogue of Vegetable and Flower Seeds, Gladioli, &c.*

Drummond Brothers, 52, George Street, Edinburgh.—*Catalogue of Vegetable and Flower Seeds.—Select List of Gladioli, Roses, &c.*

Y. Strachan, 4, High Street, Wrexham.—*Catalogue of Agricultural, Vegetable, and Flower Seeds, Plants, &c.*

J. W. Mackey, 40, Westmoreland Street, Dublin.—*Annual Descriptive Seed Catalogue and Amateur's Guide.*

B. J. Edwards, 222, Strand, and 25, Bishopsgate Street Within, E.C.—*Catalogue of Choice Flower and Vegetable Seeds, Gladioli, &c.*

Edmondson Brothers, 10, Dame Street, Dublin.—*Spring Catalogue of Vegetable and Flower Seeds, &c.*

J. Carter, Dunnett, & Beale, 237 and 238, High Holborn, London, W.C.—*Carter's Farmer's Calendar.*

TO CORRESPONDENTS.

*** We request that no one will write privately to any of the correspondents of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely to The Editors of the Journal of Horticulture, &c.*, 171, *Fleet Street, London, E.C.*

We also request that correspondents will not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, if they expect to get them answered promptly and conveniently, but write them on separate communications. Also never to send more than two or three questions at once.

N.B.—Many questions must remain unanswered until next week.

Maidenhair Fern Browned (*Subscriber, Dublin*).—The fronds you sent us are browned, we think from the want of a proper temperature and moisture, the former being too low, and the latter too great. Keep up a temperature of 55° to 60° at night, but with the soil moderately moist, but do not syringe overhead at this season, nor overwater. Remove all the old fronds down to the roots, and repot early in March.

CELERY FOR EXHIBITION (*A Subscriber*).—The best White Celery is Sandringham Dwarf, but Seymour's Superb White is larger. Of Reds two of the best are Hoodt's Imperial Dwarf and Ivery's Nonsuch; but if it be size you require then Laing's Mammoth and Ramsay's Solid Red. The Sooty Qua Cucumber does not require different treatment to that of other frame Cucumbers, being sown in a hotbed of 70° to 75°, and planted out singly in a two-light frame.

VEGETABLES FOR EXHIBITION (*T. Adam*).—From the description we should think that against Mr. Laxton's new Peas, and especially Superlative, none of our old Peas will stand a chance. We would recommend it and Emperor of the Marrows (Williams); of Broad Beans, Monarch Long Pod, and Windsor; of Beets, Dell's Crimson, and Pine Apple Short-top; of Carrots, James's Intermediate Scarlet, and Red Surrey; of Onions, Nuneham Park and Danver's Yellow; and of Potatoes, Red-skinned Flourball, and Giant King.

ROSE CUTTINGS (*M. W.*).—The cuttings struck in a pot during autumn we should repot, either singly or in fours, and place them in a cold frame with the soil just moist, and give them abundance of air. After March, or when they are growing more freely, they will need more copious supplies of water. Old standard Roses may be safely transplanted now in mild weather, and pruned-in rather closely early in March, or, better still, from the middle of November to that of December. Large clumps of the common White garden Lily may now be transplanted. They should be taken up with a good ball, and if divided, as much root and soil as possible preserved to each part. The earlier they are planted the better if the weather is mild.

POTATOES AND PEAS FOR EXHIBITION IN AUGUST (*Subscriber*).—Potatoes, Ashtop Fluke, Headley's Nonpareil, Birmingham Prizetaker, Cambridgeshire Kidney, Prince of Wales, and Lapstone, all kidney sorts. Round sorts are Giant King, Main Crop, American Peach Blow, Milky White, Red-skinned Flourball, and The Queen's. Peas, Laxton's Superlative, Williams's Emperor of the Marrows, Maclean's Best of All and Premier, Laxton's Supreme, and Hundredfold. You did not say how many kinds you required, so we have named half a dozen kidney and round Potatoes, and half a dozen Peas.

HEDGE NEAR THE SEA (*H. H.*).—There is none equal to Elder, so far as we know. We would plant not less than two rows of it on the outside, about 2 feet apart, or a hedge with two rows 2 feet, and the plants 1 foot apart. Rooted cuttings may be had at a cheap rate per 1000. Outside this again we should plant Sea Buckthorn at 2 to 3 feet apart, and then plant common Broom and Gorse or Whin freely in a good width of ground, or sow seeds of the two last. The sowing of Festuca rubra or Creeping-rooted Bent Grass, and Agrostis vulgaris or Creeping-rooted Bent Grass, is right. The hedge inside the enclosure we should plant with Beech 2 to 3 feet, by 12 inches apart.

SEA-KALE WEAK (*Cambria*).—The strongest is to be had from the youngest plants or those two or three years old. The ground should be well trenched, plants or those two or three years old. The ground should be well trenched, manured, and mixed with sand and leaf soil if it is at all heavy. Early in March plant them out in rows 2 feet 6 inches apart, and at a distance of 18 inches in the rows. It is well to surround the roots with sand, especially if the soil is heavy and the ground wet. Plants may be forced with soil at the close of March, and again at the end of May, at the rate of 1 lb. to 3 square yards, and watered with liquid manure from the middle of May to the close of August, as often as it seems necessary. The leaves should not be removed but left to die down first, and then you may begin to force—that is, in November. The cause of your not having a continuous supply is due to your starting too many at once, and not following up with fresh. Begin with a dozen pots at the end of November for Christmas, or even a little earlier, and keep on with a dozen every fortnight or three weeks up to March, after which they will come naturally, the pots merely requiring to be covered with litter or leaves to exclude air and ensure blanching. When two years old the plants ought to be very strong.

PRUNING ROSES IN POTS (*J. W. L.*)—The Maréchal Neil and Gloire de Dijon Roses one year from the bud we would now cut back, if very strong to five buds, and if only moderately so to two or three. Prune Tacsonia splendens on the back wall of a greenhouse, cutting out the last year's shoots, and encouraging the short and young. An inverted turf is good for placing on shelves which are to hold Strawberries in pots for forcing.

ZONAL PELARGONIUMS—VARIOUS (*Adonis*).—Six Zonals to be pinched in summer for late-blooming are Annabel, Duchess, Blue Bell, Lord Chancellor, Penelope, and Comet. Pans containing an inch of drainage, an inch of rough compost, and the rest of fine soil—two parts loam, one part leaf mould, and half a part silver sand—are those in which Myosotis seed should be grown. Cover the seed lightly, water gently, and place the pan in a cold frame near the glass, but shaded from the bright sun to lessen the need for watering. When the plants are well up, water them moderately and keep them near the glass. Harden them well off when they are in the rough leaf, and prick them off into a shaded position out of doors when they are large enough to be handled. For winter flowering in a greenhouse and for raising from seed Primula sinensis vars. fimbriata alba, fimbriata rubra, fimbriata striatiflora, and kermesina are excellent, and also Cyclamen persicum and coum. There are few crops that may be put in between January 1st and May 13th to be cleared by the latter date, indeed we know only of Spinach, Radishes, and Lettuce from autumn-sown plants. Radishes will stand a winter as mild as the present has hitherto been with litter spread over them in severe weather. Plums are budded on the wood of the previous year, or stem of the stock about 6 inches from the ground. If you can get wood of the current year strong enough it will answer as well as on older wood to bud on.

WORMS IN POTS (*Subscriber*).—Stop the holes in the pots while they are soaked for three hours in lime water. This may be made by placing 1 lb. fresh lime in a tub and pouring three gallons of water over it, stirring it up well, and allowing it to stand until the thick part has subsided, when the clear water is drawn off for use.

MELON-GROWING IN GREENHOUSE (*An Amateur*).—If you wish to grow Melons your house must be cleared of all greenhouse plants but those that require the same temperature as Melons do. The wood box over the kitchen boiler will answer, but it should be 8 instead of 5 feet long, to give root room for two plants instead of one, and 10 feet by 3 feet at the top. The box should have plenty of holes, with rubble over them, and 2 or 3 inches deep of rubble at the bottom, covered with 1 foot of good strong loam. As to kinds, Gilbert's Improved Victory of Bath, green-fleshed, and Royal Ascot for scarlet-fleshed will suit you.

LILIUM LANCIFOLIUM RUBRUM TREATMENT (*C. Thorne*).—The plants potted in November and now in a cold frame, should remain there until they have shoots 2 to 3 inches long, and then should be top-dressed with rich soil. After this they should be removed to a cool airy part of the greenhouse, where they will have plenty of light, or be grown in a cold pit if head room can be given them. They cannot have too much air, so long as they are kept from frost, nor should they be nearer the glass than 6 inches. Water thoroughly when the soil becomes dry. Give weak liquid manure twice a-week during the growing and flowering period, and keep the plants clear of insects.

ORNAMENTAL PLANTS IN POTS FOR OUT OF DOORS IN SUMMER (*C. B. E.*).—Channrops excelsa, Dracæna australis, Phormium tenax, Aralia Siebold, and its variegated variety, Seaforthia elegans, Abutilon Thompsoni, Agave americana variegata, Sonchus Saundersi, Yucca filamentosa variegata, Y. aloifolia variegata, Y. quadricolor, and Bambusa gracilis. Humea elegans (a biennial), and Ficus elastica are good.

VARIOUS (*Q. Q.*).—By sprinkling common salt between each layer of leaf soil 9 inches in thickness, so as to make it white, and by turning it over again within a week, and thoroughly mixing plenty of quicklime with it, this fungus may be destroyed. We highly approve of placing autumn-struck Geraniums in a frame, and surrounding the roots with soil, and tying them up with moss. Datura Huberiana is a good plant for placing on lawns with shrubs. It requires now to be sown in brisk heat, and to be grown in a good heat, so as to have the plant strong before planting-out. The seeds germinate more freely if steeped before sowing for some hours in water of a temperature from 90° to 100°.

PRIMULA JAPONICA FROM SEED (*D. M.*).—The directions for sowing this are the same as for Myosotis, and may be seen above. The imported seed is often six or eight months in germinating, or even more, so do not lose patience, but keep it in a cool place until it comes up, and then admit admit abundance of air; keep the plants near the glass, and give enough water to keep the soil moist. When of sufficient size prick them off into small pots, grow them in a cold frame or cool airy shelf in a greenhouse, and shift them into larger pots as they advance. Shade them from the bright sun in summer, but give them lights and air in winter. It appears to be hardy. The young Oleander whose flower-buds did not expand last year will flower this year in May if you place it first in a warm house, and later on in an ordinary greenhouse; so let the bunch remain.

HARDY ORNAMENTAL PARK TREES (*J. P., of York*).—For planting in parks it is necessary that the trees be 8 feet in height, well staked, and secured against cattle. Mountain Ash, Common Beech, Purple Beech, Horse Chestnut, Double Red and Double White, also Scarlet Horse Chestnut, Spanish Chestnut, Wych Elm, English Elm, Lime, Norway and Scarlet Maple; Oak, English, Turkey, and Scarlet; and Sycamore are suitable for this purpose; also Thorns as standards, which have a good effect. As your position is very much exposed, and the ground is suitable to them, we should plant principally Beech and Sycamore, which with us in a very bleak situation are the best of all. If you have a wet spot plant Birch, Poplars, and Alder.

PEACH AND NECTARINE TREES GUMMING (*Constant Reader*).—If your trees are growing in rich or damp borders they will make strong late growths, and gumming is inevitable. If the border requires draining, see that this is done, so that there may be no danger from stagnant water near the roots. If you can obtain well-decayed turfy loam, lift the trees and replant them, using a large portion of the loam about the roots.

PLUM TREE OVER-VIGOROUS (*R. E. M.*).—For all kinds of fruit trees we believe more in judicious summer-pruning than transplanting. The vigorous shoots you speak of should have been stopped twice during the summer; this treatment would have given you half a dozen less vigorous shoots, which would have furnished the wall with bearing wood. We would not advise you to replant the tree now; cut back the shoots to half their length, and in summer, when the tree is making young wood, pinch back the shoots that are inclined to be vigorous.

CONSERVATORY (*Leamside*).—In stating no shelf should be opposite the plate-glass window, we merely referred to the narrow shelf or platform continued all round the sides. There would be no necessity for breaking the line of this shelf if this window were not made into a door. Of course we like to have the stage opposite to be filled by the best showy plants. The square-cut laths will answer very well for a pathway, but will not be so elegant as iron grating. The heating pipes will be out of the way under the stage. You are quite right as to the arrangement of the piping, but take care that the air-pipe is fixed at the highest point. It is of little importance whether you take that pipe out of doors or not. We should think that 4 or 5 feet in height would be ample. The end should be bent down, so as to form a semi-circle, to prevent dust, &c. getting into it. We presume that you have a supply-cistern of some sort, taking cold water to the bottom of the boiler, and that this is higher than the highest part of the pipes. If you want bloom all the winter, you had better have three pipes instead of two all round under the stage.

MANAGEMENT OF MUSCAT VINES (*Constant Reader*).—Turfy loam of a calcareous nature, taken from an old pasture, with the addition of some crushed bones, is the best compost for Vine borders. If it is clayey loam add mortar rubbish. The time to start the vinery will depend on the time at which the Grapes are required, but Muscats are not generally grown for early crop. Start the house about the 1st of February; a temperature of 45° at night will be sufficient at first, gradually rising it to 55° at night by the time the buds have pushed an inch. The heat must now be gradually increased until an average night temperature of 70° is attained.

VINERY RAFTERS AND ROOF ANGLE (*R. Brace*).—We think the fall of the roof will be quite sufficient, but we should have judged better if we had known the height of the wall and wall plate in front. We think the rafter sash bars the height of the wall and wall plate in front. We think the rafter sash bars 4½ inches by 1¼ will do, even for 26-oz. glass at 14 inches apart. We would have three rafters 3 inches wide instead of 1½ inch, one at each end and one in the middle, in order to tie the house more securely. Then we would run an iron bar, 1 inch wide and a quarter of an inch thick, longitudinally about the middle of the roof, screwing this bar to each rafter sash bar, which would keep them all steady in their places. Two small neat columns against this bar would make all still more secure, and would be no great eyesore.

PROPAGATING CASE FOR A WINDOW (*An Amateur*).—As you dislike to go to the expense of the propagating cases advertised, to stand in a window, your best and most economical plan would be to proceed as follows:—Make a stout box 34 inches long, 17 inches wide, 13 inches deep at front, and wooden case 34 inches long, 17 inches wide, 13 inches deep at back, the bottom to rest on a table, or itself be the bottom of a table. The wood should be from 1 to 1¼ inch thick. We would have the top moveable, in two squares of glass, so as to reverse the upper and lower sides at pleasure to prevent drip. You may line it all inside with zinc or tin. What is essential is to have a box or drawer at the bottom, securely lined, with no small holes. Have an opening by which to fill that vessel or drawer with hot water; not full, however, but say from 2½ to 3 inches, so that there will be no

danger of the water running over, and there should be a tap or plug to draw off the water when cold. The heat may thus be regulated to a nicety. We should prefer the covering-plate without holes in it. It would be best to put the cuttings in small pots; you may pack round them cocoa-nut fibre or clean sand. Such a box will hold eighteen 48-sized pots, and thirty-two 60-sized pots. A second case would be useful for hardening-off the young plants.

Earth Closets (*E. C.*).—There is no doubt about the desirability of these. None have surpassed Mr. Moule's. We cannot discuss the subject, so we send you a pamphlet by to-day's post.

Conifer Seeds (*Scote*).—Write to some of the principal seedsmen who advertise in our columns.

Hautbois Strawberry—Rockery—Magnolia grandiflora (*H. A. B.*).—The culture of the Hautbois Strawberry is the same as that of others. The runners should be well rooted, placed in rows 2 feet apart, and at a distance of 18 inches from plant to plant. We grow it in beds separated by alleys 1 foot wide; each bed is 4 feet across, and holds three rows of plants, the two outside ones being 9 inches from the edges, and the centre one midway between them; the plants are at a distance of 15 inches apart. After fruiting the centre row is taken out, and the two others allowed to remain until the second or third year. We think Royal Hautbois is the best kind. We know of no book specially devoted to the formation of rockeries. The Magnolia against a south wall will not flower until it becomes strong. One of the size you name might do so in about three years.

Ixora Leaves Spotted (*X. E.*).—The spot on the leaves is caused by damp or water on a late growth. It appears as if after syringing water had rested on the leaves in drops for some time. Cease to syringe. Give more heat and air in moderate quantity, and the leaves will come all right. Keep up a good amount of moisture by evaporation, either by means of a trough or by sprinkling the floors, or both.

Roses Planting (*W. M. A. W.*).—In planting standard Roses the "crown of the roots" should not be covered more than 3 or 4 inches with soil. Deep planting is not, however, the cause of your plants going off, but it is due to the union of the Rose with the stock not being complete, there being some Roses very liable to go off, especially on the Briar. We do not know of a remedy. Soapsuds may be given to Roses, but only during the growing period, and as they hold a considerable amount of soda, should be diluted with twice the quantity of water when strong. Use liquid manure for the Roses, and apply the soapsuds between the rows of Cauliflowers, &c.

Rhubarb Forcing (*Unfortunate*).—Rhubarb cannot easily be forced in the ground in time for the 1st of January, but it may be done. Cover the stools with pots or boxes 2 feet 6 inches deep, and take a trench out on both sides of the row or rows, about 2 feet wide and deep; fill this with hot dung, heaped up a foot around the pots, at the close of November, and then you ought to have Rhubarb by New Year's day. The dung should be in a high state of fermentation, and should retain its heat for a month, being replenished with fresh as it settles. For early work it is by far the best plan to take up the roots and place them in a Mushroom house, or any place having a temperature of 55° to 60°. Royal Albert is a good kind for early forcing, and ours in the open ground, under 6 inches of litter, has stalks 6 to 8 inches long, whilst none of the other sorts have done more than swell at the crowns.

Raising Perennial Phlox (*T. M.*).—We have never experienced much difficulty in raising perennial Phlox seed, and should advise you to try again. Sow the seed in good sandy loam, in gentle heat; but by all means avoid peat, as it is apt to cake and get hard, thus seriously affecting the seed.

Potatoes Sprouted (*Bucks*).—The sprouts of the Early Rose, if less than an inch long, should not be removed, but the tubers should be kept in a cool place safe from frost, and planted with the sprouts on. If the sprouts are more than an inch in length, it will be necessary to remove them, when the tubers will sprout again by planting time. Ours have sprouted about half an inch, but by keeping them one layer thick on lath shelves, and giving them plenty of air, we shall retard them until a month is past, and then plant them. The best preventive of disease is early planting, so that the Potatoes may mature before the late summer rains. Lilium auratum's flowering power does increase yearly. We had bulbs in 1870 with five flowers, which in 1871 had thirteen flowers, and are now throwing up very strong shoots. Our "Window Gardening for the Many" will suit you, and may be had free by post from our office for 9½*d*. Cyclamen persicum seed is what you will require to order. If sown now in a hotbed, and in autumn removed to a house with a temperature of 45° to 50° it will flower finely next winter. If you procure, say, a five-shilling plant of Lapageria rosea, it will in all probability flower the first year, or, if you raise it from seed, the third year.

Rats Scratching up Red-leaded Peas (*F. S.*).—Melt some lard and mix it with oatmeal, so as to form a crumbling paste, and lay it three nights by their haunts. On the fourth mix some poison with the paste. In the meanwhile we should mix some gas tar with ashes, merely impregnating them with the tar, so as to become crumbly, and sprinkle the ashes over the rows. This will puzzle both them and mice; but poison is a much more certain remedy.

Geraniums in Winter (*Carolus*).—Select some of the best of the plants at bedding-out time for this purpose. Pot them into 6-inch if in 4-inch pots by the close of May, place in a frame, giving plenty of air, and keep all flower-buds and the points of the shoots closely picked off. From May to the middle of August they may be stood out-doors in an open sheltered situation on coal ashes, and early in August put into 8-inch pots, having been stopped a fortnight previous. After potting place them in a cold pit or a frame, giving them abundance of air, and in the third week in September remove them to a house with a temperature of 45° to 50° at night, where they will flower for some time. The flowers should be picked off up to the beginning of September. Good sorts for late flowering are Baronne Haussman, Beauty of Dulwich, Crimson Perfection, Cramoisie Superieure, Coldstream, Duke of Edinburgh, Sunlight, Mademoiselle Nilsson, Blazer, Cremorne, Queen of Nosegays, and Douglas Pearson.

Name of Fruit (*Belton House*).—Golden Winter Pearmain.

Names of Plants (*C. Bennett*).—1, Selaginella cuspidata; 4, S. Kraussiana; 2, Pteris serrulata; 3, P. cretica albo-lineata; 5, P. argyræa; 6, Adiantum hispidulum. (*Surrey*).—Chrysanthemum frutescens, *L.*, a native of the Canary Islands. It has become tolerably common during the past five or six years. (*H. Wilson, Helperby*).—We recommend you to sow your seeds and send us examples of the plants when in character. One appears to be a species of Acacia, and is remarkable for its long orange-coloured funicle; the other most probably is some of the Liliaceæ, say Urginea.

POULTRY, BEE, AND PIGEON CHRONICLE.

LIGHT BRAHMAS.

Since my last remarks concerning this beautiful breed of poultry I have had an opportunity of carefully examining the

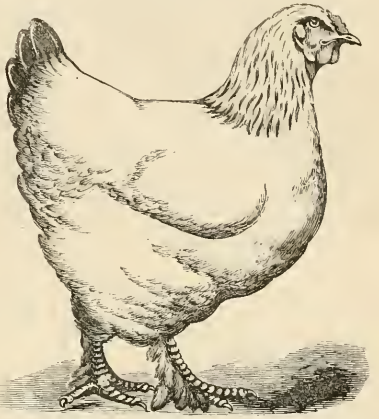


Fig. 1.

classes at the great shows of the year, and have also read the letters of Mr. James Long and my old friend (though we have

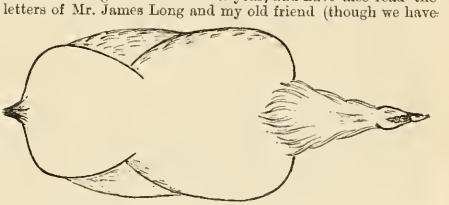


Fig. 2.

never yet met face to face) "F. P.," of Yorkshire, some of whose Dark Brahma blood is in my own yard. I have pur-

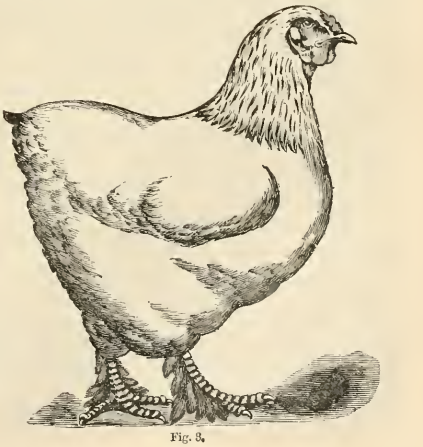


Fig. 3.

posely let the subject rest awhile, though longer than I had intended, from pressure of circumstances; but as I have a great admiration for this really splendid variety of fowls, which I am still compelled to say has greatly degenerated, I wish now to point out where I think improvement is needed, and the special faults to be guarded against by breeders. I, of course, give them as my views; I cannot commit, nor would I if I could, any judges or breeders to my opinions; but at the same time I have reason to believe that our principal judges fully agree. And I would remark that the special instances of judging pointed out by Mr. Long and others really prove little or nothing, and manifest a very small knowledge of what judging is. Many things may interfere with a bird repeating any given success, and many different birds may be brought against him. Not only shape and colour, but size, carriage, condition, comb, slipped wings, leg-feather—all have to be considered; and a wise man will rather consider the average of a judge's awards, and endeavour to form a sort of analysis for himself, than pin his faith to any particular one at a leading show, where commanding excellence in one or more points may have diverted attention from very serious faults which afterwards become apparent.

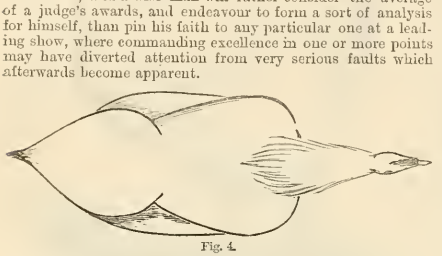


Fig. 4.

Mr. Long in his letter states again that the Lights "are and always have been, in this country at least, much inferior in frame, and cannot be made to attain the size of their more fortunate rivals;" and again, "It appears to me that one variety is naturally larger than the other." I do not think Mr. Long has been a breeder of Brahmas long enough to make such an assertion, and I am quite sure he has not been a breeder of fowls long enough yet to give him any right to sneer, as he does in his last paragraph, at any facts, or effects of strongly marked features, which others think they have observed in their own yards. When he has bred longer he may find that no law affecting the female imagination is absolutely uniform; that some individuals may be affected by the same circumstances under which others are not; and that effect may be not at all marked in its character, and yet very real. I only mention this because I object to the tone of assumption which Mr. Long takes throughout, and I proceed to say that during the past show season several birds have been taken out of pens at my request, and I can assert that many cocks have been shown over 12 lbs. These cocks have all been pure-bred, and though in all but one case bad in colour, it conclusively proves that there is size enough to be got, and that the dissociation of size and good colour, now so universal, is simply owing to the bad judgment of the breeders.

Mr. Long next doubts my remark that if birds are shown good in shape, colour, and feather "they will win, even if not large." I simply say that at the Palace the second and third cockerels (the last Mr. Long's own bird and very small), at Birmingham the first-prize cock and second and third-prize cockerels, were such birds. As I have already said, any particular bird winning or not winning proves nothing; and while, as at present, it is colour *versus* size, there must always be many apparent contradictions. Neither bird being all good, it is a comparison of two very serious faults, and not till size and colour are shown generally in the same birds can the Lights expect to compete favourably with the Darks. When this is the case—and it may be—I am quite sure they will hold their own; but while the very best chickens are sent out and stunted by early shows, I fear we shall not see it to any great extent.

But the foundation of all real improvement must be correct shape, and hence I wish to explain more particularly what I, at least, mean by "duck-shape," as contrasted with the contour of the true Brahma. The latter is, perhaps, the neatest and most compact-looking fowl of any—of any large breed unquestionably. It has, or should have, a good fluff and a broad and ample cushion. I speak of pullets. Neither, of course, is so full as in the Cochin, the Brahma being properly a much closer-feathered bird; but a good cushion there should be, broad over the tail, but rising more and more to the very last, where it merges harmoniously into the line of the nearly upright tail. Such an outline is presented in the diagrams on page 133 (*figs.* 1 and 2), and which represent the true shape as it actually exists in high-class birds.

But in looking at any Light class of pullets we shall find many birds which utterly fail to conform to this type. There are Dark birds, too, which fail in it, as I freely admit; but while I myself exceedingly object to such taking prizes, it must be remembered that whenever they do there is almost always extraordinary pencilling, which catches the judge's eye and condones the fault in shape, while the white of the other class affords no such counterbalance. Still, the fault is at least three times more general, as I carefully noted at London and Birmingham, than in the Dark classes, and the sketches (*figs.* 3 and 4), were made from a Palace bird, which was a fair type of about fifty single pullets in the class. In some there is literally no cushion at all, but in others, as in my sketches, it does appear to start out well over the wings. But, alas! the "early promise" is not kept; as it gets towards the tail it becomes narrower and narrower, so that viewed from the top the pullet appears widest across the shoulders and gradually tapers off to the tail, giving the bird a triangular instead of that square compact shape which the other type presents.

Looked at sideways the same fault will generally be found. In place of the rising Brahma cushion and nearly upright tail, the little cushion there is starts up too fully, and then gradually droops, the tail itself being nearly horizontal. Of course, in some cases the fault will show from the top and not from the sides, or *vice versâ;* but the two as drawn commonly go together, and are what is meant by "duck-shape," being analogous to the formation of the Aylesbury Duck.

In the cocks the same fault will be found. The saddle may start well, but gets narrow over the tail or does not form a nice rise to it, and the whole bird is narrow behind. Broad-saddled cocks were more numerous this season, as I was glad to observe, but are still much more rare than in the Dark classes.

In breeding Light Brahmas, then, we want to get back generally, not in exceptions merely, the neat compact shape of the true breed. We want to get back the heavy leg-feather, yet with soft hocks, which so many Dark birds now have. We want to get a distinct jet black stripe in the hackle, and we want to get all this combined with the grand size, which belongs properly to the one as to the other. I need not say how it is to be done. Breeders only need to keep the desired points carefully in mind, and they will speedily procure them, and will be fully able to compete fairly and honourably with those of us who, from want of pure country air and grass, are forced to cultivate only the no less beautiful Dark breed.—L. Wright.

LAST YEAR'S JUDGING.

I think few of my friends will say that I am in the habit of grumbling without cause, but complaints in your Journal as to the judging are now so frequent, and the dissatisfaction so widespread, that I think the question ought not to slumber, but something ought to be done to improve the present system in the coming season.

I have never before this publicly complained of the Judges, for, considering their work and the onerous duties they have to perform, it is almost impossible for them not to make some mistakes; but really the mistakes that I have seen this season by some of our acknowledged Judges have been so glaring that I think an importation of a little fresh blood would be an advantage. No doubt they are set to do too much; but surely, for their own sakes, it would be better that before accepting the office they should inquire the number of pens likely to be exhibited, and refuse to act unless there are sufficient Judges appointed, rather than that such awards should be given as were made last season.

As your readers are aware I exhibit nothing but Dorkings, and with some Judges unless the birds are dark they stand no chance. Others favour large frame irrespective of colour, and in this I think they are right, for I hold that a Dorking (not Silver) may be any colour but black and white; and that there are as heavy birds and as good birds light as well as dark, and if we are to breed to colour, we must lose size, which is the very essence of a Dorking. Now this is one of those things that occur at almost every show, and I have several times seen a superior pen beaten simply because it was light in colour.

I merely mention this as an instance, but it is not half so glaring as many awards that I have seen in Dorkings the last season. They have been so peculiar, to say the least, that I have made up my mind that if next season they are as bad, I shall retire from exhibiting entirely, though I hope never from breeding. I have heard breeders of other kinds express themselves in similar terms as to the judgment of those kinds, but I speak of the only kind that I profess thoroughly to understand.

As to amateurs exhibiting by themselves, all I can say is that I should consider I disgraced myself if I could not compete, and successfully (of course, not always so), with the best breeder or exhibitor in the kingdom, be he amateur or dealer; and I am sure if any amateur will only use a little judgment and keep to one breed alone, he will soon find that he can win in any company. But there is also another consideration which I think of very great importance—namely, that were it not for dealers buying birds from amateurs to exhibit, many amateurs, who at the end of the year find a nice little balance in their favour in their poultry account, would find themselves debtor to cash. In my own case dealers are amongst my best customers, and I find they give as good a price as anyone, and I invariably send birds on approval to them, but unless I know the amateur I always decline. Dealers know the value of birds; many amateurs do not. If we debar dealers from exhibiting their custom will soon cease.

I like free trade in the poultry exhibition as well as anywhere else; but I do ask for and expect good decisions, which certainly have not been the rule during the past season. I write with the best intention, and without wishing in any way to hurt the feelings of any of our Judges; but I hear so many complaints expressed, and that from many of our most eminent breeders and exhibitors, that I hope the subject may be thoroughly ventilated, and some means adopted to improve the present system of judging, which is deterring, and will, unless improved, deter many of our best breeders from exhibiting at all. I know I am treading on very delicate ground, and should not have touched upon the subject at all but for the complaints that have appeared in your Journal, which I consider are just, and require the immediate attention of the committees of our shows.—T. E. Kell.

WHAT SHOULD REGULATE CLASSES? POLANDS' CRESTS.

A few weeks ago the secretary to one of our poultry shows made a remark which I humbly think requires a rejoinder. Of classes which are badly represented at some shows, he remarked that fanciers of those sorts of birds should exhibit their fowls in strong numbers if they wish them to have more classes allotted to them. Now I cannot help thinking that this is rather more than can be expected of the generality of exhibitors. Suppose a case at a certain show. There are four if not five classes for Hamburghs; at the same show there is one class for Polands, of all ages and of all colours. Now, is it fair to expect so numerous an entry, or of such good quality, in the one class of Polands, which would include White-crested Black, Golden, Silver and any other colour, as in the four or five classes of Hamburghs? I certainly cannot persuade myself that it is. In my opinion Polish fowls at all our first-class shows should have at any rate six classes allotted to them—viz., two classes for Goldens, adults and chickens, the same for Silvers, and the same for any other colour. Then, and not until then, will Polish fowls have justice done them. If with this classification they still came up in small numbers, I should say such liberal treatment ought not to be expected in future. If it be said that it has been tried and has proved a failure, I answer, Yes, but several years ago when Polish fowls were scarce, and when they were supposed to be only an ornamental fowl, and a very tender and delicate breed too. Now they are much more extensively kept than formerly, and I think my brother fanciers will corroborate what I say when I affirm, as I do most fearlessly, that the Polish fowl is extremely hardy, and one that is very easily reared.

I will now just advert for a moment to a point on which I expect a little contradiction; that is, whether the largest-crested Polish fowls ought, on account of their immense crests, to take prizes in preference to smaller-crested birds which are more correct in their markings and richer in colour. I think that they should not, if the smaller-crested birds are much superior in marking and colour, and have decent crests; for, although the crest is the principal feature in the Polish fowl, yet I do think that brilliancy of colour and correctness of marking are very important points, and I should certainly prefer to sacrifice a little in crest, if by so doing we could gain in the other points named.—G. W. Boothby.

ANY OTHER VARIETY OF BANTAMS.

In answer to your correspondent "Fair Play," it has long been my opinion that it was time to have separate classes for Black and for Any other variety of Bantams. Further, a well-known breeder and exhibitor of Black Bantams said to me at Birmingham Show, that he never would show any more unless there were a separate class for Black Bantams, and I nearly made up my mind to do the same. If I so resolve, I think committees of shows will miss my name in the Bantam classes, as I show about seventy pens of Black Bantams in the year. I consider that the extraordinary merits of the Black Bantams entitle them to a separate class, and the same may be said of the White and Laced Bantams, though the latter two are not shown in such large numbers, but they would be if encouraged the same as some of the large breeds—for instance at Birmingham and Wolverhampton Shows in 1870 and 1871, of White Bantams there was an entry of fourteen and fifteen pens respectively, and I am certain there will be a large entry of Whites this year at Wolverhampton. Why? Because good prizes are offered.

If committees will only offer good prizes, I think owners will make plenty of entries, and I hope that the committees of our shows will follow the example of Birmingham, Leeds, and Newport. I will send to all shows where there are separate classes. If there are two or three shows on the same day, I cannot, of course, exhibit at all of them, but I will send to those with the most liberal prize list. I do not like to see exhibitors in the Variety class for Bantams paying an entry fee of 5*s.* to compete for a prize of £1, while exhibitors of other breeds can compete for a £2 prize for the same entrance fee. When classed by themselves these Bantams always muster a good entry, indeed I never saw a Black Bantam class a failure. Our leading Black Bantam breeders should do their best to have separate classes for our pets—the prettiest of all fowls.—R. H. Ashton.

WOLVERHAMPTON POULTRY SHOW.

The sixth annual Meeting of this Society took place in the Agricultural Hall, Wolverhampton, on the 2nd, 3rd, and 5th inst., and was a most extraordinary success. The Show was of great excellence, and the first bright beams of sunshine that have been noted in this district for five or six weeks placed beyond question the pecuniary success of the undertaking. Considering that the earliest moment the Hall can be placed at the disposal of the Directors of the Show is after the Wednesday's market is closed, and that the whole of the fittings have to be erected, and the specimens all penned and ready for the Judges early on the Friday morning, the public being admitted at 2 P.M., it must be admitted that the arrangements have to be made most expeditiously; and they were most effectually carried out under the able superintendance of the Hon. Secretary, Mr. Barnett.

The Show embraced collections from most of the principal English breeders of poultry, and prizes were awarded to Pigeons that had actually been sent from Amsterdam. These birds proved to be of varieties never before seen in the United Kingdom, and as a matter of course from their great novelty excited much attention. The number of entries of all descriptions nearly reached 1200, or three hundred more than last year. There was the customary display of the best of Cochins, Brahmas, Dorkings, and waterfowl in the empire; many very valuable lots were, however, breaking up very rapidly in constitution from constant exhibition. It was stated in the Exhibition that some of the very best birds had actually never passed three nights together at their owners' for some months past, "but had been travelling constantly from show to show, and had earned for their owners tenfold their cost price, though it appeared at the time of purchase so large." Some of these birds were evidently so emaciated as to suggest the probability of their never being able to last out the season.

In the *Game* classes, on the contrary, the most brilliant condition and robust health prevailed in almost every instance, in the majority of cases the Game fowls shown being quite unaccustomed to the exhibition pen, and they were such as are rarely equalled for tightness of feather and robust constitution. In these classes, by referring to our appended prize list it will be seen Mr. James Fletcher, of Stoneclough, almost monopolised the prizes with grand exhibits, worthy of the successful issues of that gentleman's yards in their most palmy days. It is evident by their attractiveness at Wolverhampton that Game fowls

are still objects of much interest and admiration in this district, which some quarter of a century back was so noted for them. *Turkeys*, *Geese*, and domestic *Ducks* were among the best features of the Exhibition; and in waterfowl kept simply for their exquisite beauty of feather and general liveliness of character on artificial waters near private suburban residences, the Show stood equal to any. This class proved so large and well filled, that at the request of the Judges an extra prize was willingly granted, and even then scarcely a pen remained not fully worthy of prizetaking. In this division Buenos Ayrean Ducks were first, Mandarina second, and American Summer Ducks third on the prize list. The class for any variety of Bantams except Game, and almost all the classea for French fowls, were among the best in the Show, and excited mnch attention from their novelty in thia neighbourhood.

DORKINGS.—*Cock.*—1, L. Patton, Taunton. 2, Miss Daviea, Chester. 3, J. Martin, Claines, Worcester. *hc*, Miss Davies; — Robinson, Garatang; J. L. Lowndes, Hartwell, Aylesbury. *c*, H. Tyler, Birmingham.

DORKINGS.—*Hens.*—1, L. Patton. 2 and 3, J. Martin. *hc*, Hon. J. Massey, Limerick; N. Russell; Rev. G. H. Biggs; Rev. E. Bartrum, Berkhampstead; Dr. Hewson, Coton Hill, Stafford; C. Speed, Exton, Oakham. *c*, A. Darby, Bridgnorth.

COCHIN-CHINA (Cinnamon and Buff).—*Cock.*—1 and Extra, H. Lloyd, jun. 2, Mrs. Allsopp, Bindlip Hall, Worcester. 3, H. Lloyd, jun., Handsworth. *hc*, W. A. Burnell, Southwell, Notts; W. A. Taylor.

COCHIN-CHINA (Cinnamon and Buff).—*Hens.*—1, Mrs. Wilkin, Bootle. 2, A. Bamford, Middleton. 3, W. A. Taylor. *hc*, H. Lloyd, jun. (2); W. A. Taylor; H. Tomlinson, Gravelly Hill, Birmingham; Mrs. Wilkin.

COCHIN-CHINA (Brown and Partridge).—*Cock.*—1, T. Stretch, Ormskirk. 2, E. Tudman, Whitchurch. 3, W. A. Taylor.

COCHIN-CHINA (Brown and Partridge).—*Hens.*—1 and 2, W. A. Taylor. 3, J. K. Fowler.

COCHIN-CHINA (White).—1, W. A. Taylor. 2, R. S. S. Woodgate. 3, R. Smalley. *hc*, Mrs. A. Williamson, Leicester; R. Smalley, Lancaster. *c*, A. J. E. Swindell, Heathland, Stourbridge; R. S. S. Woodgate, Pembury, Tunbridge Wells; Mrs. A Williamson.

BRAHMA (Dark).—*Cock.*—1, T. F. Ansdell, Cowley Mount, St. Helen's. 2, B. F. Parrott. 3, W. A. Taylor. *hc*, Dr. Holmes, Whitecotes, Chesterfield; Master J. Gamon, Chester; A. Rigg, Sevenoaks; E. Pritchard, Tettenhall. *c*, Lady Tankerville, Chillingham Castle; G. F. Whitehouse, King's Heath, Birmingham; Mrs. Bailey, Longton.

BRAHMAS (Dark).—*Hens.*—1, T. F. Ansdell. 2, E. Pritchard. 3, J. Watts. *hc*, Earl of Shrewsbury, Ingestre Hall; A. H. Etches, Market Drayton; H. B. Morrell, Caermawr, Clyro; H. Yardley, Birmingham; A. Rigg; J. Watts. *c*, O. E. Creswell; G. F. Whitehouse.

BRAHMAS (Light).—*Cock.*—1, W. T. Storer, Brewood. 2, H. Draycott, Humberstone, Leicester. 3, Mrs. A. Williamson. 4, J. A. B. Dean, Chepstow. *c*, Mrs. A. O. Worthington, Burton-on-Trent; J. Benton, Erdington (2); C. Morris.

BRAHMAS (Light).—*Hens.*—1 and 2, J. R. Rodbard, Wrington. 3, F. Crook, Forest Hill. 4, H. Dowsett, Pleshey. *hc*, Mrs. A. O. Worthington; Mrs. A. Williamson; J. Beach, Wolverhampton; T. A. Dean. *c*, Rev. M. Rice, Bramber Rectory.

HOUDAN.—*Cock.*—1 and 3, R. B. Wood, Uttoxeter. 2, D. Lane, Hardwick, Gloucester. *hc*, Mrs. J. Cross, Appleby Vicarage, Brigg; J. C. Cooper. *c*, Lady Tankerville.

HOUDANS.—*Hens.*—1 and 2, R. B. Wood. 3, W. Dring. *hc*, Rev. C. B. Rowland; D. Lane. *c*, Mrs. Harding.

CREVE-CŒURS.—*Cock.*—1 and 3, R. B. Wood. 2, W. Dring. *hc*, J. K. Fowler, Aylesbury; Mrs. Wilkin; R. B. Wood. *c*, F. Bennett.

CREVE CŒURS.—*Hens.*—1, R. B. Wood. 2, C. H. Smith, Radcliffe-on-Trent. 3, J. C. Cooper, Limerick. *hc*, E. Pritchard; Mrs. Wilkin; W. Dring, Faversham; J. K. Fowler; J. J. Malden.

SPANISH.—*Cock.*—1, Hon. Miss D. Pennant, Penrhyn Castle. 2, E. Jackson. 3, J. Walker. *hc*, Mrs. Allsopp; E. Jackson, Finchfield; J. F. Sillitoe, Wolverhampton; Miss E. Browne. *c*, Mrs. Allsopp; E. Gill, Redland, Bristol.

SPANISH.—*Hens.*—1, J. Thresh, Bradford. 2, J. F. Sillitoe. 3, Hon. Miss D. Pennant. *hc*, Hon. Miss D. Pennant; E. Jackson; J. Walker, Sandeford; J. F. Sillitoe; E. Gill. *c*, H. Beldon, Bingley; E. Jones; H. F. Cooper (2).

GAME (Black Red).—*Cock.*—1 and 2, J. Fletcher, Stoneclough. 3, G. R. Smith, Scarborough. *hc*, J. Forsyth, Wolverhampton; J. Mason, Worcester; G. Bagnall, Drayton, Cheadle; W. Speakman.

GAME (Brown Red).—*Cock.*—1 and 2, J. Fletcher. 3, G. Clement, Birmingham. *hc*, G. Lucas, Mansfield; G. F. Ward, Wrenbury, Nantwich; J. Oldfield, Bradford. *c*, Earl of Shrewsbury; W. Dunning, Newport.

GAME (Except Black or Brown Red).—*Cock.*—1, S. Matthew, Stowmarket (Duckwing). 2, J. P. Gardner, Rugeley (Duckwing). 3, J. Fletcher (Duckwing). *hc*, G. Lucas; G. Heafford.

GAME (Any variety).—*Hen.*—1, J. Fletcher. 2, S. Matthew. 3, — Bassington (Piles). *hc*, J. Forsyth (3); J. Fletcher. *c*, Earl of Shrewsbury; J. Fletcher; C. H. Kyle (Duckwing); C. W. Brierley.

HAMBURGHS (Gold-spangled).—1, J. Buckley. 2, H. Beldon. 3, J. Roe, Hadfield. *hc*, Duke of Sutherland; C. Parsons. *c*, T. May & Son; E. F. Gardom; T. Walker, jun.

HAMBURGHS (Silver-spangled).—1, Duke of Sutherland. 2, H. Beldon. 3, — Allsopp. *c*, R. Bailey, Etwall, Derby.

HAMBURGHS (Gold-pencilled).—1, Duke of Sutherland. 2, H. Beldon. 3, G. Ashpole, Etwall. *c*, A. Smith, Northowram; C. Parsons; C. Bloodworth.

HAMBURGHS (Silver-pencilled).—1, H. Beldon. 2 and 3, Duke of Sutherland. *hc*, J. W. Edge, Erdington.

HAMBURGHS (Black).—1, N. Marlor. 2, Rev. W. Serjeantson, Acton Burnell. 3, C. Parsons. *hc*, C. Parsons, Whitmore Reans; T. Bush, Bristol; R. Bailey; Rev. W. Serjeantson. *c*, H. Beldon; C. Sidgwick, Ryddlesden Hall, Keighley.

BANTAMS (Game).—1, Clews & Adkins. 2, G. Heafford. 3, Miss Swindell. *c*, J. Oldfield.

BANTAMS (White, Clean-legged).—1 and 2, Rev. F. Tearle, Gazeley Vicarage, Newmarket. 3, R. H. Ashton. *hc*, H. Beldon. *c*, R. Pickles, Great Hey; H. Draycott.

BANTAMS (Any variety except Game and White).—1, M. Leno, Markyate Street (Laced). 2, Master F. W. Ridgway (Black). 3, Rev. W. Serjeantson (Japanese). Extra Prize, W. Cutler, Worcester (White Booted). *hc*, Mrs. Woodcock (White Japanese); Master F. W. Ridgway, Dewsbury (Black); J. H. Bradwell (Black); E. Cambridge, Cotham, Bristol (Black); P. Pigott (White Booted); H. Beldon (Booted); Rev. G. F. Hodson, North Petherton (Sebright); W. W. Boulton (Cuckoos); M. Leno (Laced); H. Beldon. *c*, Ladies Moreton (White Japanese); H. Draycott; E. Cambridge (Black); Mrs. A. O. Worthington (Black); Duke of Sutherland; T. Bush (Cuckoos); W. W. Boulton, Beverley (Cuckoos).

ANY OTHER VARIETY.—1 and 2, H. Beldon. 3, Rev. A. G. Brooke, Shrawardine (Malays). *hc*, T. Dean (Golden Poland); W. Jackson, Blakedown, Kidderminster (White-crested Polands); H. Frankland (Cuckoo Cochins); W. Hill, Heaton Moor (Cuckoo Cochins); R. S. S. Woodgate (Silkies); F. Wilton (Black Cochins); Rev. G. F. Hodson (Malays).

SELLING CLASS.—*Cock.*—1, J. Mansell (Spanish). 2, W. A. Taylor (Buff Cochin). 3, J. Bloodworth, Cheltenham (White Cochin). 4, C. Bloodworth (Buff Cochin). *hc*, O. E. Cresswell (Coloured Dorking); Rev. G. F. Hodson (Coloured Dorkings); H. Lloyd, jun. (Buff Cochin); H. Tomlinson (Buff Cochin); J. Bloodworth (White Cochin); J. Sichel (White Cochin); Hon. Miss D. Pennant (Dark Brahma); G. A. Stephens (La Fleche); J. K. Fowler (La Fleche); W. Tippler (Houdan); F. Bennett (Creve-Cœur); J. Walker (Spanish); E. Jackson (Spanish); J. Fletcher, Stoneclough, Manchester (Game); J. Forsyth (Black Red); Duke of Sutherland (Golden-pencilled Hamburgh); T. Boulton (Golden-spangled Hamburgh); J. Buckley (Golden-spangled Hamburgh); H. Bagshawe (Black Hamburgh). *c*, Mrs. E. Williams (White Dorkings); J. Bloodworth (Buff Cochin); H. Tomlinson (Buff Cochin); T. Siamey (Partridge Cochin); Hon. Miss D. Pennant (Spanish); J. Clements (Game); Misses Wilson (White Malay); Capt. Downman (Silver-spangled Poland); J. P. Gardner.

SELLING CLASS.—*Hen.*—1, E. Jackson (Spanish). 2, H. Lloyd, jun. (White Cochin). 3, Rev. G. F. Hodson (Dorkings). 4, T. Bush (Black Hamburgh). *hc*, W. A. Burnell (Buff Cochins); A. Darby, Bridgenorth (Buff Cochins); H. B. Morrell (Dark Brahms); J. Sichel, Timperley (Buff Cochins); E. Ryder, Hyde, Manchester (Dark Brahma); Hon. Miss D. Pennant (Dark Brahms); J. A. B. Dean (Light Brahms); M. Leno Markyate Street (Light Brahma); E. Pritchard (Crève-Cœur); Miss E. Browne (Spanish); H. Blower (Spanish); J. Mansell, Longton (Spanish); S. Stephens, jun., Ebley, near Stroud (Game); J. Widdowson, Meynell Langley (Silver-spangled Hamburgh); T. Yateman (Silver-spangled Hamburgh); F. Boulton (Golden-pencilled Hamburgh); G. F. Whitehouse (Golden-pencilled Hamburgh); C. Pimley (Golden-pencilled Hamburgh); F. Bennett (Black Hamburgh); W. Cutler (White-booted Bantams); *c*, N. Russell, Bryngwyn, Oswestry (Coloured Dorkings); R. W. Beachey, Kingskerswell (Dorkings); J. Robinson (Dorkings); H. Lloyd, jun. (Buff Cochin); R. Thompson (Dark Brahms); R. M. Lord (Dark Brahms); G. Ashpole, Etwall (Golden-pencilled Hamburgh); A. Darby.

TURKEYS.—1, F. Lythall, Banbury. 2, N. Russell. *hc*, W. Tippler, Chelmsford.

GEESE.—1, J. K. Fowler. 2, J. Watts. *hc*, W. Tippler.

DUCKS (Aylesbury).—1 and *hc*, J. K. Fowler. 2, T. Hedges. *c*, Misses Wilson, Woodhorn Manor; T. Hedges.

DUCKS (Rouen).—1, J. Wright. 2, W. Stephens. *hc*, J. K. Fowler; Rev. H. J. Stokes, Grindon Rectory, Leek; H. B. Smith, Broughton, Preston.

DUCKS (Any other Variety).—1, G. S. Sainsbury, Devizes (East Indian). 2, M. Leno (Mandarin). 3, J. Watts (Carolina). *hc*, Lady Tankerville (Shelldrakes); J. E. Morris (Pintail, Carolina, and Mandarin); Rev. W. Serjeantson (Pintail); N. Russell (Carolina); R. H. Ashton (Mandarin); H. B. Smith (East Indian and Mandarin).

PIGEONS.

TUMBLERS.—*Almond.*—1, J. Ford, Mookwell Street, London. 2, J. Fielding, jun., Rochdale. 3, J. Ford. *Any other Variety.*—1, J. Ford. 2, J. Fielding, jun. 3, R. G. Teebay, Ormskirk.

CARRIERS.—1 and 3, W. Siddons, sen. 2, H. Yardley, Birmingham. *hc*, S. Holroyde, Mumps, Oldham.

POUTERS.—1 and 2, Mrs. Ladd, Calne. 3, H. Yardley. *c*, J. Duncan, Walsall.

FANTAILS.—1 and 2, H. Yardley. 3, J. W. Edge. *hc*, J. F. Loversidge; A. A. Vander Meersch, Tooting.

ANTWERPS.—1, H. R. Wright, Hockley. 2, H. Yardley. 3, J. Robbins, Wolverhampton. *hc*, S. A. Taylor, Sutton Coldfield; H. R. Wright. *c*, C. Copeman. *Working or Homing Antwerps.*—1 and 2, H. P. P. Price, Castle Madoc, Brecon. 3, R. Pritchard, Ludlow. *c*, Hon. G. Lascelles, Leeds.

DRAGOONS.—1, W. H. Mitchell. 2 and 3, J. Watts. *hc*, T. Robson.

JACOBINS.—1, J. Thompson, Bingley. 2, F. Waitt, King's Heath, Birmingham. 3, H. Yardley.

ANY OTHER VARIETY.—1, H. R. Wright (Barbs). 2, W. Cnoopkoopman, Amsterdam. 3, H. Yardley. 4, H. Draycott, Humberstone, Leicester. *vhc*, J. Thompson (Helmets). *hc*, T. A. Dean, Marden, Hereford (Black-headed Nuns); H. Yardley; W. Arkwright (White Frill-back); J. Fielding, jun. *c*, J. E. Morris, Elmsdale, Wolverhampton (Ice); W. Cnoopkoopman; S. Holroyde.

SELLING CLASS.—1, J. Thompson. 2, H. Yardley. 3, H. R. Wright (White Dragoons). *hc*, C. Langman, Bilston (Antwerps); J. W. Edge (Barbs). *c*, T. Robson (Turbits and Magpies); W. Choyce; J. W. Edge.

JUDGES.—*Poultry:* Mr. Edward Hewitt, Eden Cottage, Sparkbrook, Birmingham; Mr. R. Teebay, Fulwood, Preston. *Pigeons:* Mr. W. B. Tegetmeier, Finchley, London; Mr. H. Allsopp, Birmingham.

DUNDEE POULTRY SHOW.

THE first Show of poultry was held in the Kinnaird Hall, Dundee, on the 1st and 2nd inst., and as far as regards the quality and number of specimens it was a success. The Hall, a handsome building, is one of the best there could be for the purpose. The pens used were those of Mr. Fothergill, of Sunderland, and the arrangement and management of the Show, though in few hands, was very good.

All the *Dorkings* in the Dark-Grey class were very good, and the cup for the best pen of any colour was awarded to the adult bird. It is seldom that so perfect a pen of adult Silver-Grey Dorkings is seen as that which was first in its class, though both classes contained good birds. Adult *Spanish* were of fair quality, and the young birds were very fine. The first-prize pullet was a model. Adult *Cochins* in both classes were very poor, but the chickens were good, the cup being awarded to a pen of Buffs, in which the cockerel was strikingly handsome. In *Brahmas* the cup went to a sound-coloured pair of chickens, and the competition in this class was very close. Of *Game* there were large and good entries, the competition being severe in all classes. In single cocks a Brown Red of high quality was first, and Black Reds second and third. Following these were the Red Game hens, the first of which was a Black Red, very sound in flesh and tight in feather. Among Game cocks of any other colour, an extremely good Pile cockerel was first, and the cup for Game cocks was awarded to him, the second and third-prize birds being Duckwings. In the class for hens Duckwings won all the prizes. *Hamburghs* were shown the Spangled in one and the Pencilled in the other class, Silvers in both cases carrying-off the first honours, and the cup for the section also. In Game *Bantam* cocks there were no less than forty entries, and the competition was keen, the first-prize bird being a Black Red, perfect in all points; and the cup was also awarded to this bird. The second-prize bird was fine in shape, but a little short of colour; the third-prize one was good in all points, but larger than the rest. There were many others also worthy of notice. Of hens there were twenty-four pairs, but they did not show to the same advantage as the cocks, doubtless

on account of the approach of the laying season. The first prize went to Piles, and the second to Black Reds, the latter being somewhat out of condition, though of very good quality. In the class for Any other variety, the first and third prizes went to Sebrights, and the second to Blacks. In the Variety class for other poultry, Silver Polands were first, Black Hamburghs second, and Crêve-Cœurs third.

In *Ducks* the Aylesburies were a good class, but the Rouens were not equal to them. The Selling class contained forty-three entries of birds of good quality and of most varieties.

Dorkings (Coloured except Silver-Grey)—1 and Cup, J. W. Will, Errol. 2, D. Gellatly, Meigle. 3, Mrs. A. Bruce, Meigle. *hc*, A. Bowie, jun., Carnoustie. *Chickens*—1 and 2, W. Langlands, Dundee. *hc*, J. W. Will; T. Raines, Stirling; A. Bowie, jun.; G. Allen, Balhary, Meigle; D. Gellatly.

Dorkings (Silvers).—1, Mrs. M'Donald, Forres. 2, M. Edwards, Hilton, Alloa. 3, D. Annan, Cupar, Fife. *Chickens*.—1, T. Raines. 2, J. Turnbull, Falkirk. 3, J. W. Will.

Spanish.—1 and Cup, H. Wilkinson, Earby, Skipton. 2 and 3, A. Shepherd Meigle. *hc*, Mrs Abels, Alith. *Chickens*.—1 A. Shepherd. 2, J. W. Will. 3, H. Wilkinson. *hc*, W. Leslie, Sellardyke. *c*, A. Bowie, jun.; W. Paterson, Langholm.

Cochin-China (Cinnamon or Buff).—1, J. W. Will. 3, Miss Drummond, Meginch Castle. *Chickens*.—1 and Cup, J. C. Jameson, Newton-on-Tay. 2, T. Stretch, Ormskirk. 3 and *hc*, J. W. Will. *c*, A. Barnett.

Cochin-China (Any colour except Cinnamon and Buff).—1, J. Stephenson, Tillyfour. 2 T. Stretch. *Chickens*.—1, T. Stretch. 2, W. Fraser, Aberdeen. 3, J. Stephenson. *hc*, Mrs. C. Wilson, Broughty Ferry; W. Smith, East Newport.

Brahmas (Any colour).—1, T. F. Ansdell, Crowley Mount, St. Helens. 2, Lieut-Col. C. Rice, Cupar. 3, Miss Morrison, Kirkcaldy. *Chickens*.—1 and Cup, J. Stuart Scoaringbarn. 2, R. Brownlie, Kirkcaldy. 3, J. W. Will. *hc*, T. Raines; D. Annan; H. White.

Game (Black and Brown Red).—*Cock*.—1, H. M. Julian, Hull. 2, J. Mason, Worcester. 3, J. Dick, Dunphail. *hc*, J. W. Will; J. Allan; Henderson and Campbell, New Deer; R. Stewart, Kelty; N. L. & T. H. Herriot, Kirkcaldy; T. Mason, Green Ayre; J. Mollison, Meigle; J. W. Will. *c*, J. W. Will. *Hen*.—1, J. W. Will. 2, L. Casson, Ulverston. 3, T. Mason. *hc*, J. Dick; Henderson and Campbell; J. Carlisle, Earby; A. Stephen, Blairgowrie.

Game (Any other colour)—*Cock*.—1 and Cup, J. W. Will. 2, H. M. Julian. 3, Morris & Woods. *hc*, J. Anderson, Kirkcaldy; W. Baillie, Monifieth. *Hens*.—1, Earley, Ridmarley. 2, H. M. Julian. 3, J. W. Will.

Hamburghs (Spangled)—1, J. W. Will. 2 and 3, G. & J. Duckworth, Church. *hc*, J. W. Will; R. H. Ashton, Mottram; W. R. Park; Mrs. Brown, Crieff. *c*, D. Harper, Fogvieley, Lochee.

Hamburghs (Pencilled).—1, Cup, and 3, J. W. Will. 2, W. R. Park. *hc*, Mrs. Chalmers; A. Pratt.

Game Bantams (Any colour).—*Cocks*.—1 and Cup, R. Brownlie. 2, J. Barlow, 3, Morris & Woods. *hc*, J. W. Will; G. Todd; R. Brownlie (2); Miss J. M. Frew; J. Dobson; Bellingham & Gill; R. Youll; J. Scott. *c*, J. Scott; J. Mollison; J. Henderson. *Hens*.—1, R. Brownlie. 2, G. Todd. 3, Bellingham & Gill, Woodfield, Barnley. *hc*, J. Abel. *c*, J. W. Will (2); R. Youll, East Boldon, Sunderland; Miss R. C. Frew, Kirkcaldy.

Bantams (Except Game).—1, T. Watson, Freeland Bridge of Earn. 2, R. H. Ashton. 3, Miss B. P. Frew. *c*, J. Watts, King's Heath, Birmingham (2).

Any other Variety.—1, W. Bearpark, Ainderby Steeple. 2, A. Pratt, Kirkcaldy. 3, W. R. Park, Melrose. *hc*, G. G. M'Laren, Broughty Ferry; Mrs. J. F. White, Castle Hunter.

Ducks (Aylesbury).—1, Lord Kinnaird. 2, J. W. Will. 3, J. Stephenson. *hc* Lord Kinnaird; J. Mollison. *c*, R. Dickie, Burnside; H. White.

Ducks (Rouen).—1, J. Mollison. 3, J. Stephenson. 3, A. Bowie, jun. *hc*, W Wilson. *c*, A Simpson.

Selling Class.—1, W. Paterson. 2, Lord Kinnaird. 3, J. Stevenson. *hc* Miss Drummond (2); A. Bowie, jun.; W. Leslie; W. Smith; D. Gellatly; J Mollison; Mrs. Harvey, Edinburgh. *c*, J. Taylor, Montrose; Mrs. J. F. White A. Shepherd.

The Judges were:—For Dorkings, Cochins, Spanish, and Brahmas, Mr. Teebay, Preston; for Hamburghs, Bantams, Variety class, Ducks, and Selling class, Mr. Hutton, Pudsey. The Game were judged jointly.

FALKIRK POULTRY SHOW.

This Show, which took place on the 2nd and 3rd inst., was by far the best ever held in the locality, this result being mainly due to the tact and energy of the Hon. Secretary, Mr. D. H. Roberts, who, after finding the Society in debt last year, determined to carry it on till success should be attained, and we are happy to state that both in point of numbers and pecuniary results this object has been accomplished. The Corn Exchange, where the Exhibition was held, is well suited for a poultry show, the light being well diffused and abundant. The arrangements were all that could be desired, and the pens used were those of the Royal Gymnasium at Edinburgh, and with the backs covered with boards they answered the purpose well. We understand, as they are let for hire, that it is the intention of the proprietor to provide canvas backs, thus preventing damage to the birds, so much complained of of late.

Adult *Spanish* were only moderate in quality, but the young made up for them, most of the cockerels being of high merit, though the best pullet was a very young bird in the third-prize pen. There were four pens of *Dorkings*. The cup was awarded to a good pen of Dark birds shown by Mr. Raines. *Cochins* were a mixed class; the first prize went to Buff, and the second to White. The Buff cocks being very good in colour, took the cup from the *Brahmas*, of which there was a large but only moderately good display. *Hamburghs*, with the exception of the winners, were but poor. The special prize was awarded to Silver-spangled, but the decisions would no doubt have been different if Messrs. Ashton & Booth's pen had arrived in time. *Polands* were very good, and Blacks won the special prize; Golden were second, and Silvers third. With the exception of the winners of the timepiece, the Red *Game* were not good, but these were all that can be wished for both in feather and soundness of flesh. In Duckwings the hens were superior to the cocks; and in this class the so-called celebrated pen of Mr. Harley's was left out on account of a large part of the lower and underpart of the cock's hackle being out. The following letter was exhibited above a pen of Game belonging to Mr. Little. It had been sent to Mr. Hutton, one of the Judges:—

"Dickstrer, Longtown, Carlisle, January 18, 1872.

"Sir,—I see you have been judg at Selkirk, and I hav been I of the suc-cessful exebetrs. I most Thank you kindly For your kindy returns you showed towards My Birds. I have just entered them For Falkirk Poultry Show if you Think they will dow any thin thar. I onld Lik the tim Peese at Falkirk its For the Best Pare of Game so if you judge thare Let me know and i shal go Shares with the money Prize For you cindens your Respectfully Ricrd. Little, Dickstrer, Longton. *P.S.*—Please Write."

The pen was disqualified, and we wish that all poultry committees would resolve never to allow the writer of that letter to exhibit.

In the Variety class grand Crêve-Cœurs were first, Scotch Greys of extraordinary merit second, and Silver-pencilled third.

There were some large and well-shown *Turkeys* and *Ducks*.

There were thirty entries of Game *Bantams*, and the competition was keen. The first and third prizes went to Black Reds, and the second to Duckwings. The Bantams in the Variety class were unusually good; Blacks being first, Pekins second, and Silver Sebrights third. Both Selling classes were well filled, and many of the birds changed hands.

Of the *Pigeons*, the Pouters measured well, and in style and carriage were all that could be desired. Blue Pied were first, White second, and Black Pied third. Fantails were fair, as also the Jacobins. In Tumblers, the Almonds were first and Black Mottles second, both kinds being very good. Of Carriers there were some well-shown birds; the winners were all Black. There was a large entry in the Variety class. The first prize went to a nice pair of Letz, the second to Black Trumpeters of high quality, and the third to a pretty pair of Blue Foreign Owls. In most of the classes special prizes were offered by tradesmen, and these were awarded to the first-prize pens.

Spanish.—1, R. Somerville, Edinburgh. 2, J. Duncan, Carron. 3, W. C. Hardie, Carron. *hc*, D. M'Heath, Bridge of Allan; J. Craigie, Fordell. *Chickens*.—1 and Special, W. C. Hardie. 2, H. L. Horn, Whiteriggs, Airdrie. 3, J. Waddell, Airdrie Hill. *vhc*, W. Schofield. *c*, W. Boswell, Falkirk; G. Williamson.

Dorkings.—1, J. Malcolm, Falkirk. 2 and *c*, T. Raines, Stirling. 3, D. Draper, jun., Falkirk. *hc*, W. Weir, Falkirk. *Chickens*.—1 and Special, T. Raines. 2, J. White, Northallerton. 3, W. Weir. *c*, R. Meiklejohn, Stirling.

Cochin-China.—1 and Special, J. Y. Heys, Barrhead. 2, R. Kerr. 3, J. Malcolm. *hc*, R. Duncan, Stirling; M. Edwards, Alloa.

Cochin-China.—1 and Special, J. W. Taylor, Ulverston. 2, J. Wyse. 3, J. Polson, Bushby. *hc*, A. Williamson; Mrs. Graham. *c*, H. Wyse; A. Crawford; T. Bruce, Bushby.

Brahma Pootra.—1 and 2, W. Weir. 3, W. Hughes, Springburn. *hc*, J. Waddell; J. Young, Cauldhame. *c*, E. Robinson, Airdrie; T. Raines; J. M. D. Brown, Edinburgh.

Hamburghs (Golden-spangled).—1, R. H. Ashton, Mottram. 2, R. Dickson, Selkirk. 3, E. Robinson. *vhc*, T. Love, Airdrie. *c*, D. Beaton, Bushby; J Guthrie, Hexham.

Hamburghs (Golden-pencilled).—1, W. R. Park, Abbotsmeadow, Melrose, 2, R. Dickson. 3, J. Harper, Blairlogie. *hc*, J. Logan. *c*, H. Russell; J. Ness, Kirkcaldy; J. Peat, Kirkcaldy.

Hamburghs (Silver-spangled).—1 and Special, W. R. Park, Melrose. 2, A. Glen, Paisley. 3, D. Forrester. *hc*, J. Bruce. *c*, J. Logan.

Polands (Crested).—1 and Special, Mrs. J. M. Proctor, Hull. 2, Parsons and Wilson, Bedlington. 3 and *c*, T. Waddington, Blackburn. *vhc*, D. Draper. *hc*, W. Paterson; A. Wylie, Johnstone.

Game (Black-breasted and other Reds).—1 and Special, E. Aykroyd, Eccleshill. 2, S. M'Coll, Strathblane. 3, J. Fisher, Kirkcaldy. *hc*, J. M. D. Brown; D. Harley, Edinburgh. *c*, J. Waddell; A. P. Cowan, Blairadam; W. Bruce; G. Roper, Falkirk.

Game (Any other colour).—1, 3, and Special, E. Woodburn, Ulverston. 2, G. A. Ferrin, Longlinstown, Dublin. *hc*, D. Harley; E. Aykroyd. *c*, Hutchison and Sime, Grahamston.

Any other Variety.—, W. R. Park (Crêve-Cœur). 2, J. Meiklem, Hamilton (Scotch Greys). 3, A. Glen (Silver-pencilled). *hc*, A. Binnie, Grahamston (Scotch Grey); A. Whitecross, Cumbernauld (Scotch Greys). *c*, R. Mason, Barrhead (Crève-Cœur); T. Waddington (Houdans); J. Logan (Houdans).

Ducks (Aylesbury).—1, J. Logan. 2, J. Meiklem. 3, A. Nicol. *hc*, Z. H. Heys, Barrhead; J. Webster, Falkirk. *c*, J. Fotheringham, Dalbeattie.

Ducks (Any other variety).—1 and Special, J. Meiklem. 2, R. H. Ashton. 3, J. M'Nab, Alva. *hc*, S. Bell, Plean.

Turkeys.—1 and Special, J. Wilson, Polmont. 2, W. Forbes, Falkirk. 3, W. Weir. *hc*, A. Mitchell; J. Webster.

Bantams (Game).—1 and Special, A. Hutcheson. 2, G. Todd. 3, Mrs. R. Frew, Kirkcaldy. *hc*, R. Brownlie, Kirkcaldy; D. Muir, Paisley; Pickering and Dugdeley Field; M. Edwards; T. Raines (2); Miss B. P. Frew, Kirkcaldy; J. Walls, Dunfermline; Mrs. Harvey, Edinburgh.

Bantams (Any variety).—1 and Special, R. H. Ashton (Black). 2, T. Waddington (Laced). 3, A. Johnston. *hc*, Mrs. R. Frew; Mrs. Houldsworth, Wishaw (Sebrights); H. L. Horne (Bantams); T. Waddington (Laced); J. Currie, Kilmarnock (Black). *c*, D. Muir (White); Pickering & Dugdeley (White); R. Frew.

Selling Class.—Cock.—1, S. Bell (Dorking). 2, J. Sime. 3, H. L. Horne (Spanish). *hc*, A. T. Williamson (Brahma); T. Raines (Brahma) (2); W. Weir (Brahma); J. M. D. Brown (Brahma); J. Malcolm (Dorking); H. Donsmore, Polmont (Dorking); T. Raines (Dorking); J. M Lachlan, Paisley; D. Harley (Game); R. Tyson, Longtown (Golden-spangled Hamburghs); C. H. Johnston, Barrhead (Bantam); R. Paterson; J. Frame. *c*, A. Johnston, Bathgate (Game Bantam); R. Dickie.

Selling Class.—*Hens*.—1, W. C. Hardie, Falkirk (Spanish). 2, S. Bell, Plean (Dorkings). 3, A. Williamson (Cochin). *hc*, Harvey (White Brahmas); W. Weir (Spanish); H. Donsmore (Scotch Greys); J. Roberts, Falkirk (Partridge Cochins) *c*, A. T. Williamson (Brahmas); J. M'Gill, Elie (Dorkings); J. Malcolm (Dorkings); H. L. Horne (Dorkings); J. Turnbull (Dorkings); R. Paterson (White Dorkings); J. Lyle, Wishaw (Game).

PIGEONS.

Pouters.—1 and Special, M. Stuart. 2, J. Wallace. 3, W. B. Van Haansbergen, Newcastle-on-Tyne. *hc*, J. Mardoch, Kilsyth; M. Stuart; Miss M. G. Frew; J. Wallace (2); R. Arbuckle, Glasgow; J. Waddell; T. Waddington; J. Grant, Edinburgh; J. Frame. *c*, J. M. D. Brown.

Fantails.—1 and Special, W. B. Van Haansbergen. 2, Gow & Walker. S. J. Galt, Kilbirnie. *hc*, A. Johnstone; J. Wallace; J. M. D. Brown; A. Crosbie; T. Waddington.

JACOBINS.—1 and Special, J. Wallace. 2, H. Yardley, Birmirgham. 3, T. Waddington. *hc*, W. E. Van Haansbergen; J. Gait; A. Richmond; T. Waddington.

TUMBLERS.—1, 3, and Special, M. Stuart. 2, J. Fielding, jun., Rochdale. *hc*, W. E. Van Haansbergen: A. Johnstone; J. Wallace; T. Waddington.

CARRIERS.—1, 2, and Special, T. Waddington. 3, A. Richmond, Kilmarnock. *hc*, M. Stuart, Glasgow; J. G. Dunn, Newcastle-on-Tyne; A. Johnstone; A. Richmond.

ANY OTHER VARIETY.—1 and Special, A. Creslie, Melrose. 2, J. Wallace (Trumpeters). 3, J. Fielding, jun. *hc*, J. Wallace (Barbs); W. E. Van Haansbergen; T. Waddington (Trumpeters); J. M. D. Brown (Dragoons); T. Waddington (Porcelain Ice). *c*, Miss E. C. Frew; H. Yardley; J. Wallace (Laheres).

SELLING CLASS.—1, E. Robinson, Airdrie (Pouters). 2, J. G. Dunn, Newcastle-on-Tyne. 3, J. E. Spence, Bromghty Ferry. *hc*, J. Gait; J. Frame (Pouters).

JUDGE.—Mr. E. Hutton, Garden House, Pudsey, Leeds.

A REMARKABLE INCIDENT.

WITHIN the last two years I have had three consignments of beautiful variegated fancy Pigeons from abroad, at once handsome, novel, and valuable. Amongst the first collection I received was one bird of a rather singular variety of Pigeon, a match to which, I think, is not to be with in Great Britain, and I am also inclined to think that the variety is not common in any country. A small space will suffice for a brief description of her peculiarities. In general outline she is much after the character of the Jacobin; her feathering is of a deep glossy black throughout except the tail, which is pure white; the head is small and unusually round, for it is a proper round head, and is partially covered from behind by a close-fitting hood, which terminates abruptly at the sides of the neck; the beak is very short and black. The eye is a pure white, and surrounded by a thin, fleshy, blackish-red lash; the eye, therefore, from its extreme whiteness and brilliancy is most conspicuous by its surroundings of intense black. Another peculiarity, which is only observed on close inspection, is, that she is minus the little oil-gland immediately above the tail. I have had six other Pigeons from abroad with the same peculiarity, therefore I am not surprised at this somewhat extraordinary feature.

This funny little Pigeon came to me direct from Turkey, for I helped them all to land, and I was vexed to find only one of the variety, for a pair were shipped to me, but the cock bird died on the voyage. I reached home safely with my birds and placed them in a warm place prepared for their reception, but I resolved on putting this oddity with my stock of Antwerps, and giving her entire liberty. In due course out she came and seemed perfectly satisfied with her English home, and fed, flew, and bred with my Antwerps for the season, but unfortunately only one young one was the issue of her alliance with the mate she made choice of. That young one was a fac-simile of herself; but notwithstanding my watchful eyes, and her tender care—for she is a capital feeder—it died. Seeing a sign of an established breed from the trial of such an ill-assorted pair, I decided upon placing her in another pen and looking out for a better and nearer match; yet although I changed her pen she still was allowed her liberty with the others during the day, but at night her place was with the Toys, and to this abode she soon became accustomed. After each day out with the flyers she would in the evening wait upon the window-frame of her home for me to let her into it. And so things went on for months, until one night, being busily engaged to an unusually late hour, I quite forgot my Capuchin (for such I named her, as in some degree resembling that kind), until I was aroused from my writing by a fall of crockery, and then heard the whirr, whirr, of wings. Up I rose and out I went, directing my steps to the paneless portion of the window, hoping to find the bird still there; but, no! she was gone, whither I knew not, but my suspicions were soon aroused on seeing by the light of the moon a cat, whose tiger-like form I clearly beheld as it scaled a high wall in rather too hasty a manner to look innocent. To the cats, then, my bird has gone thought I, and I retired brooding vengeance on the feline race.

A week or more elapsed, when, as Honorary Secretary of the Birmingham Columbarian Society, I attended our periodical meeting, and ere business commenced the following questions were addressed to me by our President (Mr. H. Allsopp). "Mr. Ludlow, have you lost any of your birds lately?" I replied "Yes, unfortunately, a very good Antwerp cock." "But have you not lost any other?" "Yes, I have," said I, "if a bird can be lost when you know where it is gone," and then I told the members about the crash, the rush upon the foe, the hasty retreat, the shadow-like form in the moonlight, &c. Then our worthy President informed me that his reason for asking the question was that he had caught a bird similar to that which he had seen at my place, and had it then in his pocket. Without further questioning he produced the bird, and there, sure enough, was my poor cat-killed Capuchin, who, no doubt frightened from her snooze on the window-frame by the nightly peregrinations of the tabby, had probably flown some distance by moonlight, and so was lost and captured the next day three miles from my place, which had been her only home in this country. Thus it will be seen that although she has never been out of my possession from the time I took her off shipboard, she had flown from the Secretary's to the President's, and in her course, whether straight or circuitous, over the large industrial hive of Birmingham and Aston, with its 106,470 dwellings, inhabited by 489,313 persons, besides the thickly populated suburbs adjoining. When we also take into consideration the hundreds of Pigeon-keepers in Birmingham, who between the hours of one and two o'clock turn out their immense kits of flyers for their daily airing, it must be considered a remarkable incident that my peculiar foreigner should have passed from my keeping in so strange a manner, and have been captured at the house of my fellow fancier, friend, and colleague, whilst it was stealing its frugal meal in company with a few birds which are set at large, and kept as feeders for his better birds.—J. W. LUDLOW, *Vauxhall Road, Birmingham.*

PARASITES ON CANARIES.

I WOULD supplement the remarks made by Mr. Blakston on this subject (see page 94) by adding that, as I have already pointed out in "The Entomologist," a fruitful and frequently-overlooked source of the very troublesome Acari is the seeds with which the birds are supplied. There are certainly bird-lice which have nothing to do with the seeds, and which, like fleas, breed in the birds; there are others which swarm in the seeds—more at some seasons of the year than at others)—and from these transfer themselves to the birds. I have detected these in canary, rape, and hemp, mostly small; and yet they evidently not only live amongst, but devour the seeds. At the first opportunity, however, they are quite prepared to betake themselves to animal food. These Acari do not appear to trouble the birds during the day, when they cluster together in corners and angles, to await the dusk, which sends them out on their rambles. If the seed-vendors carefully sifted their seed before sending it out, and kept it as dry as possible, there would be a diminution in the number of these Acari, even though it might not be possible to keep the seed entirely free of them.

I do not see what the "worms" could have been to which Mr. Blakston refers, unless, indeed, they were the larvæ of some one of the wood-boring beetles. The bird-lice or Acari, though they undergo some slight changes as they increase in size, do not pass through any transformations. Besides the adoption of the remedial measures already suggested, it has been recommended to apply to all the cracks and crevices in the cages a solution of camphor in spirit of wine and turpentine mixed. The application of train oil to the infected parts of wooden cages has also been very serviceable.—J. R. S. C.

EARLY POLLEN—DYSENTERY.

MY bees carried in pollen on the 2nd of February. The pellets on the thighs were large and yellow. On that day I changed all the floorboards, brushing off numerous dead bees which had perished from dysentery, owing to the very mild damp weather we have had so long. Some of the healthiest stocks were those on which I have had inverted flower pots over the central holes in the top-boards, a piece of perforated zinc intervening. By this plan much of the damp air within the hive seems to be able to make its escape. The floorboards of some hives on which there were no flower pots were very mouldy.—S. BEVAN FOX.

MR. WOODBURY.—The following extract from a notice of the late Mr. Woodbury appeared in the "Bienenzeitung" of October 31st. It well deserves a place in our Journal, and will be read with interest by all who remember his labours in the cause of apiarian science. I am indebted for its translation from the German to one of the daughters of the deceased.—R. S.

"Again, dear bee friends, the sad duty devolves upon me of announcing the death of a man who has done much for apiculture, and who must have been the first best bee-keeper of modern times in England. Indeed, all the readers of the 'Bienenzeitung' remember the name — remember the in-

teresting articles that Woodbury wrote on foreign races of bees, and to translate which was always a pleasant task to me. But the bee-keepers of Germany knew nothing further of the distant friend who first introduced the Italian bee into England, and whose intention of naturalising the Indian bee also was only frustrated by death. One of his last works was the superintendence of the manufacture of a hive in which a swarm (Apis dorsata) should have been introduced into England from India's distant shore, the arrival and success of which was Woodbury's dearest wish."

UNITING SWARMS.

The practice of joining swarms, or what is more commonly termed "chop-offs," to stocks in the autumn is of very old date, and is still recommended in modern works and periodicals. Save by a correspondent to our Journal, who lately recommended the brimstone pit as the best mode of disposing of these surplus bees, and who for his pains got a few stings from some of our worthy bee-masters, I am not aware of the plan ever having been condemned by anyone. Now, although it is universally approved of, I believe the anticipated benefit is seldom derived, for the bees escape dying in spring by meeting with an earlier death when joined to stocks in autumn. I will endeavour briefly to show the advantages and disadvantages of uniting swarms to stocks in autumn, and will then pass on to the proper time at which swarms ought to be joined.

In the first place, let us ask what hives ought to be strengthened in the autumn, and why? Such hives are those only which have aged queens, and whose population has been reduced through the defects of the queen in breeding; or late swarms in a bad season which have lost many bees, and have, therefore, an insufficient population to maintain a uniform degree of heat in winter. It is, therefore, requisite in joining swarms that every precaution should be taken, so that it will be certain that the best queen will be saved and not in any way maimed. From the foregoing it will be seen that it is in few cases that uniting is recommended; in fact, under good management hives do not require to be united in autumn. When bees are joined, if no fighting occur at the time many bee-keepers think all is right, and having so many bees together look forward to securing early swarms next spring. They never think of the mishaps that are almost sure to occur, nor of the natural life of the bee. I may here mention that hives with not less than 3 lbs. of bees, or even 2 lbs., in autumn ought never to be disturbed by uniting, because a healthy queen with that number of subjects will bring forward in spring as many bees as one with double the number; nay, a small second swarm is often the first to swarm. Then why put yourself to all the trouble, and run the risk of having healthy queens destroyed, through uniting where bees are not required? As I have paid particular attention to swarms so joined for many years I will state my observations.

First, when a swarm is joined to a stock both queens are encased, and if not both killed at the time, frequently they do not survive long; and even should one survive, she is often maimed and is seldom allowed to lead a swarm, so that the consequent loss in the spring is far greater than the benefit of a few bees in autumn. Besides, how often are hives really strengthened by this mode? I have seen hives supposed to be peaceably united, have stood beside them after dusk, and seen the bees leaving by the thousand.

This occurs owing to two causes, one being when the bees miss their queen, the other when the one set of bees is assailed by the other; in the former case, the queen of the strange bees being killed immediately after the hives are united. Although the bees themselves have not been meddled with, whenever they miss their queen a commotion commences, almost invariably after daylight, and the bees leave the hive never to return. In the latter case the strange bees, although wounded, are still able to fly, and quit the hive for ever. Thus the unsuspecting bee-keeper is disappointed, and in nine cases out of ten the surviving queen is so maimed that she is often deposed early in the spring, thus causing a cessation of breeding for some weeks; and if not deposed she is seldom able to fly with the swarm, and is sometimes lost. The great danger in uniting bees in autumn can only be obviated in the same manner, and by using the same precautions, as when we join an Italian queen—in fact, it is utterly useless to unite swarms in autumn except in cases where the weight of bees has been reduced to less than 2½ or 3 lbs. A young healthy queen with from 3 to 4 lbs. weight of bees will be far in advance of one with three times that weight made up by joining. "Union is strength," but that strength is only required when there is work to be done. What advantage is there in uniting swarms months before they are required, when it is a well-known fact that in a healthy hive six weeks will be sufficient to supersede every old bee by young ones? It may not be out of place to mention here that I have kept bees until they were fourteen months old. Whenever the apiarian knows he is to have surplus bees he ought to join them in the height of the honey season, and thus make the most of them, disturbing the stocks as little as possible after the honey season is past.

Nor is it requisite to unite swarms for their better keeping in winter, because a hive containing from 3 lbs. and upwards will occupy three or more seams at a temperature of 10°; and this number appears to be quite sufficient, in an unprotected hive with no more than a projecting roof, to stand a cold at several degrees below zero. Such was the case in 1860, when the thermometer sank to 4° below zero. I had a dozen hives standing exposed; the hive itself was only half an inch thick, and the only protection was a ridge projecting 6 inches round the hive. One-half of these hives were not more than half full of combs, and yet they all turned out well in spring. I am not far wrong when I say that a hive three-quarters filled with comb, and one-third of that occupied by bees at a temperature of from 10° to 20°, is about the proportion for a hive to remain healthy and free from disease during winter. A hive filled to overflowing and perfectly full of combs will not winter better than one only three-quarters filled. It is thus necessary to have our hives constructed so that we can add or diminish, not only during winter but throughout the seasons.

Like Mr. Lowe, I do not think it a good plan to divide hives in autumn, yet it is well to have a few nucleuses as described, to be kept in a rather warm and dry place during winter, in order to fill up any wants that may occur in spring through the death of a queen in winter.—A Lanarkshire Bee-keeper.

OUR LETTER BOX.

Age of Stock Game Fowls (*H.*).—We do not believe that birds bred from parents five years old will be as good as those bred from two-year-old birds. Much depends on the condition in which they are when moulting. It is a strain on the system, and, if they are worth a little attention, they should be cared for as much while it is in progress as if they were in training. The quality of the feather will depend much on the material of which it is made.

Weight of Dorkings and Brahmas at Birmingham (*Subscriber*).—Dorking cock, 12 lbs.; hens, 10 lbs. Brahma cock, 13 lbs.; hens, 10 lbs. at the last show.

Poultry Management (*Black Coat*).—Your fowls are better managers for you than you would be for them. The Dorkings are laying now that they may be broody in time to bring you off some early chickens, and the Spanish will be laying all the time the others are sitting. The Spanish are not early layers, but they lay well when they begin, and you will thus be constantly supplied with new eggs. The appearances you describe indicate they will shortly lay, but not that they are laying. You have succeeded, *malgré vous*, in doing that which many try for, and which is the intention of two breeds—viz., to make one succeed the other, and not to have all your eggs at once.

Sowing Grass Seed on Poultry Run (*W. T.*).—You should do it at once so far as the time of year is concerned; but you will, we think, do well to wait till the land does not hold as much wet as it does now. If the extent of the run permit it, shut up half of it at a time. If it does not, keep the poultry out till there are evident signs the seed has taken root and is growing.

Brahma Hens (*W. T.*).—We should hatch our chickens from the eggs laid by the hen without vulture hocks. Nothing would compensate for them. In almost every particular we like the second better than the first. We do not for a moment believe all the chickens (cocks) will have brown patches on the wings. You must weed out those that have. By way of experiment you might set some eggs of the first hen.

Pullets not Laying (*W. H.*).—The cock has nothing to do with laying, but pullets are better satisfied when one runs with them, and we believe they keep in better condition. Borrow one for a week, and that will answer every purpose.

Scurfy Fowls (*Hamburgh*).—We hardly understand the scurvy as applied to the diseases of fowls. There is the white face, which is the disorder from which the Hamburgh is suffering, and the white dry excrescence on the legs. The former is certainly cured by the application of strong sulphur ointment, unless it be the remains of some distant cross with a white-faced breed, as Spanish in Black Hamburghs. In this latter case there is no cure. The excrescence on the legs may be much alleviated by the application of the same made very strong, but it is difficult to cure. The best thing you can do with the hen is to purge her thoroughly with castor oil, and feed her on ground oats slaked with milk, bread soaked in milk, and a small quantity of kitchen scraps chopped fine. When she is recovering you can use Baily's pills advantageously, and as soon as there appears some life in her let her out. While she is confined nothing will be more beneficial than to give her daily a sod of growing grass cut with plenty of mould. If this treatment will not help her, we should advise you either to kill her, or else let her take her chance, unless she lays golden eggs. The best food we know for fowls is ground oats; when these cannot be had, barleymeal. One of these slaked with water should be given for the morning and evening meals. At midday give maize, barley, and kitchen scraps. Where the latter are given the quantity of corn should be diminished.

Poultry House (*Far West*).—We should prefer to make the end of the house, *a*, *a*, solid without a door. We should then make two-thirds of the

lattice-work also solid, save two small glazed windows in the upper part. The remainder of the front may then be lattice-work, with the exception of the end, which would form the door. We return the sketch that you may see our meaning. Your perches would then run from the marks *o*, *o*, *o*, inside the building, and would rest on a ledge opposite to them, fastened to the "side of outhouse." This would afford protection sufficient for any weather, because there would be no draught. The accommodation of numbers of poultry is of little importance as regards roosting, the run during the day is the most important point in that particular. You seem well off for space, and food to be had for foraging, the best food there is for poultry, but they must not quite depend upon it, and they should always have as much food as they will run after given to them early in the morning. You do not mention green food, whether they have access to grass; if not, they must be provided with something of the sort. Refuse vegetables will do. They will also want grit or gravel, and some bricklayer's rubbish thrown down. They should always have the option of going out. Remaining the run is a large one, you may safely keep twenty-four Brahmas and a dozen Bantams. If you wish it we believe you may keep more.

POLANDS FEATHER-EATING (*J. J. C.*).—It is a very rare thing to find fowls eating feathers at this time of year. It is by no means uncommon late in the season when the plumage is old, and the birds are sickly previous to moulting. Your hypothesis is not a correct one. It is supposed to arise from a disorded state of body. Of course they are confined, or they would not do it. Remove the cock and supply the hens with green food, especially with sods of growing grass cut with plenty of mould. It is more than possible they may find in that the change they want, and for which they substitute feathers. Avoid all stimulating food.

FLOOR OF POULTRY-YARD (*Geva*).—A concrete floor or run for poultry is a very bad one. It affords no scratch for the fowls, it is unyielding to the feet, and consequently keeps them always on the stretch. This is uncomfortable for the fowls, and that which is so is detrimental to their condition. We should infinitely prefer the sharp gravel. We are afraid we have more rats than you have, but they do not kill our chickens. They eat their food.

BIRMINGHAM CUP DORKING COCKEREL.—"I find that the year in which I purchased the bird was 1869, inadvertently stated as 1870. Unfortunately my Dorkings are unable to speak for themselves, otherwise they would, doubtless, ask Mr. Waller to state in what respect they 'are incorrect,' and further to point out that their birthplace is 'The Laurels, Taunton,' not 'Birmingham.' —J. B. SAUNDERS."

POISONED FOWLS (*Birmingham*).—Your hypothesis of the labels containing arsenic is not admissible. We have no doubt Mr. Harley's fowls were purposely poisoned. The analysis shows there was arsenic "in considerable quantity." There are too many cases of maiming and disfiguring exhibited fowls for us to doubt that some exhibitors are malicious and revengefully jealous.

CHINESE FOWLS.—"On reading the answer to 'G. C. A.' (page 93), about Chinese fowls, and the letter headed 'Black Cochin-Chinas' (page 90), I was reminded of some fowls which I saw last summer recently imported from Hong Kong, and which were said to be of a valuable breed. These were Black, mostly with dark-reds and beards, some with the peculiar double comb of half-bred Crève-Cœurs; indeed, soyons might have fancied they were Cochins crossed with Crève-Cœurs.—LETITIA WARD, *The Close, Salisbury.*"

INDUCING A HEN TO SIT.—"A hen may be persuaded to sit at any time of the year.—VINCENT FRASER." See page 110. "A SUBSCRIBER" will be greatly obliged by information how this is done. Perhaps "VINCENT FRASER' will reply to this.

BEAK OF MAGPIE PIGEON (*A Reader*).—Magpies certainly should have dark beaks; birds of this variety are not perfect if the colour of beak is otherwise. Many specimens are too often seen with the upper mandible of the beak dark, and the lower one light, which is a decided blemish. The beak should be nearly black, corresponding with the intense black head of the bird.

PIGEONS GOING LIGHT.—"If Mr. H. Allsop will give his Pigeons castor-oil pills instead of castor oil he will not soil the plumage of his birds. A friend of mine has tried them with success.—S. H."

PIGEONS AND CANARIES (*J. W.*).—White Jacobins, although they had bull eyes, yet being, as you say, very good in other points, might win. Match your Evenly-marked Buff cock Canary with a rich Jonque hen, either clear in colour, but having Evenly-marked blood in her, or Evenly-marked if having Crested blood; or being Crested, you would get Evenly-marked and Crested birds as well. Mind the markings are not too heavy. We think that this class of Canary is a good one for amateurs to breed for exhibition, especially to begin with.

SWAN-NECKED EGYPTIAN PIGEONS (*Pharamond*).—We know nothing of this large variety of Scandaroon. Certainly those exhibited recently were by no means large. Mr. Baily, of Mount Street, imports a great number of birds from the Continent, and most likely could procure them for you.

CANARY'S HEAD UNFEATHERED (*Edith*).—If by any accident a Canary should get the top of its head thoroughly plucked, it will most frequently remain bare until the next moult. Such may be the case with the wild Canaries from Madeira, to which you refer. If the baldness arise from what is known as scurf—and the description given seems to indicate it—anoint the part with fresh butter as free from salt as it can be made by washing, and give plenty of green food—watercress, lettuce, a slice of apple, the inner leaf of the heart of a cabbage, chickweed, groundsel—such as can be obtained.—W. A. BLAKSTON.

DEAD CANARY (*J. S. W.*).—The defunct subject is a Buff bird with a cross of Norwich in it. The colour indicates that it might pass for a Norwich bird, but a very poor specimen. You describe him as a "fine straight bird," which "stood up well on his legs." That indicates a strain of what is known as Yorkshire. But judging from his appearance in his coffin, I should say there was as much Norwich as anything in the departed.—W. A. BLAKSTON.

BEES AT CAMBERWELL (*Constant Subscriber*).—We have no doubt they will thrive if well managed. They were kept by Wildman in Holborn.

BEES DYING (*W. J. H.*).—It is probable that your bees have died of dysentery. The extremely damp and mild weather which has prevailed this winter is the cause of great mortality. As you say that you have fed liberally, it is not likely that your bees have perished of starvation. You cannot do better, if the mortality still continues, than to frequently change the floorboard. Spring feeding usually commences in March; but if you have any doubt as to your hive having a sufficient supply of food stored up, you had better give your bees the benefit of the doubt, and let them have a few ounces of food twice a-week on any mild day. We do not reply by post to queries.

REMOVING A HIVE (*T. H.*).—A hive of bees may safely be moved 4 feet from its present position with perfect safety, provided it be done in mild still weather when the sun is shining. Choose the first warm, unclouded day when the bees come out in force. The later you can put off the operation the better, of course, as the sun's rays are acquiring heat every day.

METEOROLOGICAL OBSERVATIONS,

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude 111 feet.

DATE. 1872. Jan. and Feb.	A.M. Barometer at 32° and Sea Level.	A.M. Hygrometer. Dry.	A.M. Hygrometer. Wet.	A.M. Direction of Wind.	A.M. Temp. of Soil at 1 ft.	IN THE DAY. Shade Temperature. Max.	IN THE DAY. Shade Temperature. Min.	IN THE DAY. Radiation Temperature. In sun.	IN THE DAY. Radiation Temperature. On grass	Rain.
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 31	29.920	48.5	40.8	S.W.	43.1	52.8	40.4	77.3	36.8	—
Th. 1	29.715	47.2	44.7	S.	42.4	51.3	41.5	71.4	36.8	0.097
Fri. 2	29.650	48.4	46.6	S.	43.8	50.8	44.0	68.0	42.9	0.080
Sat. 3	29.954	42.0	41.9	S.	42.9	45.5	36.3	55.0	32.3	0.090
Sun. 4	29.839	45.6	44.2	S.	42.6	46.2	42.0	50.8	39.2	0.070
Mo. 5	29.675	46.5	43.4	S.E.	42.8	49.4	41.9	53.0	36.6	0.010
Tu. 6	29.686	48.1	47.0	S.	43.6	51.2	45.8	55.4	41.5	—
Means	29.777	45.9	43.9		43.0	49.6	41.6	61.6	38.0	0.220

REMARKS.

Jan. 31st.—Fine in morning and throughout the day.

Feb. 1st.—Cloudy in the night, white frost in the morning, fine sunrise, bright till about 3 P.M., then dull, rain between 4 and 5 P.M., and in the evening with wind at night.

2nd.—Rain in the night, fair but overcast in the morning, then showery with bright sun between, sharp shower with hail at 0.34 P.M.

3rd.—Very dark early in morning, but brighter about 2 P.M., dull afternoon, fine evening.

4th.—Dull and showery all day. Red Aurora spreading nearly all over the sky from 6.15 to 6.29 P.M., and again from 8.10 to 8.45. Very bright in S.E. in the early part of the evening.

5th.—Showery, damp, and dull all day.

6th.—Overcast in morning, a little rain about noon, and occasionally through the day, but not enough to measure. Fine night.

A very similar week to its many precursors, southerly winds, high temperature, great moisture, and a generally cloudy sky.—G. J. SYMONS.

COVENT GARDEN MARKET.—FEBRUARY 7.

A STEADY regular business is being done without any marked improvement in the general tone. Supplies of home-grown produce are well kept up, and from the Continent and Channel Islands we have rather more than usual at this season. Broccolis both from Jersey and Cornwall are excellent. Good sound Potatoes of the different varieties command a fair sale. Inferior descriptions are very heavy.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....sieve	0	0	to 0	0	Melons.....each	0	0	0	0
Apricots.....doz.	0	0	0	0	Mulberries.....lb.	0	0	0	0
Cherries.....lb.	0	0	0	0	Nectarines.....doz.	0	0	0	0
Chestnuts.....bushel	10	0	20	0	Oranges.....₱100	0	0	10	0
Currants.....½ sieve	0	0	0	0	Pears, kitchen.....doz.	2	0	4	0
Black.....do.	0	0	0	0	dessert.....doz.	3	0	8	0
Figs.....doz.	0	0	0	0	Pine Apples.....lb.	6	8	10	0
Filberts.....lb.	0	6	1	0	Quinces.....doz.	0	0	0	0
Cobs.....lb.	0	6	1	0	Raspberries.....lb.	0	0	0	0
Grapes, Hothouse.....lb.	4	0	8	0	Strawberries.....lb.	0	0	0	0
Gooseberries.....quart	0	0	0	0	Walnuts.....bushel	10	0	25	0
Lemons.....₱100	7	0	10	0	ditto.....₱100	1	0	2	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes.....doz.	4	0	to 6	0	Leeks.....bunch	0	3	to 0	6
Asparagus.....₱100	6	0	8	0	Lettuce.....doz.	1	0	2	0
Beans, Kidney....per 100	3	0	4	0	Mushrooms.....pottle	1	0	2	9
Broad.....bushel	0	0	0	0	Mustard & Cress..punnet	0	2	0	0
Beet, Red.....doz.	1	0	3	0	Onions.....bushel	2	0	4	0
Broccoli.....each	1	0	3	0	pickling.....pint	0	6	0	0
Brussels Sprouts..½ sieve	1	6	3	0	Parsley per doz. bunches	3	0	4	0
Cabbage.....doz.	1	0	1	6	Parsnips.....doz.	0	9	1	8
Capsicums.....₱100	0	0	0	0	Peas.....quart	0	0	0	0
Carrots.....bunch	0	3	0	6	Potatoes.....bushel	2	0	3	0
Cauliflower.....doz.	2	0	6	0	Kidney.....do.	3	0	5	6
Celery.....bundle	1	6	2	0	Radishes..doz. bunches	0	6	1	0
Coleworts..doz. bunches	2	0	4	0	Rhubarb.....bundle	0	9	1	0
Cucumbers.....each	1	0	3	0	Savoys.....doz.	0	9	1	0
pickling.....doz.	0	0	0	0	Sea-kale.....basket	1	0	3	0
Endive.....doz.	2	0	0	0	Shallots.....lb.	0	4	0	9
Fennel.....bunch	0	3	0	0	Spinach.....bushel	3	0	4	0
Garlic.....lb.	0	8	0	0	Tomatoes.....doz.	0	0	0	0
Herbs.....bunch	0	3	0	0	Turnips.....bunch	0	3	0	6
Horseradish.....bundle	3	0	4	0	Vegetable Marrows..doz.	0	0	0	0

POULTRY MARKET.—FEBRUARY 7.

WE have but a moderate supply, but it is sufficient for the trade. Prices are good for the time of year, and there is no prospect of any decrease in them.

	s.	d.	s.	d.		s.	d.	s.	d.
Large Fowls	3	6	to 4	0	Partridges	0	0	to 0	0
Smaller ditto	3	3	3	6	Hares	3	6	4	0
Chickens	2	0	2	3	Rabbits	1	5	1	6
Geese	7	0	8	0	Wild ditto	0	10	0	11
Ducks	2	0	3	6	Pigeons	1	0	1	2
Pheasants	0	3	0	0	Guinea Fowl	3	0	3	0

WEEKLY CALENDAR.

Day of Month	Day of Week.	FEBRUARY 15—21, 1872.	Average Temperature near London.			Rain in 43 years.	Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	Days.	m. h.	m. h.	m. h.	m. h.	Days.	m. s.	
15	Th	Meeting of Royal and Linnean Societies.	47.0	31.3	39.2	17	18 af 7	11 af 5	11 af 10	2 af 0	6	14 25	46
16	F	Cambridge Term divides.	47.0	30.6	38.8	11	16 7	13 5	32 10	15 1	D	14 22	47
17	S		46.6	30.6	38.6	17	14 7	15 5	57 10	24 2	8	14 18	48
18	Sun	1 Sunday in Lent.	45.2	31.1	38.2	17	12 7	17 5	31 11	30 3	9	14 13	49
19	M	Meeting of Entomological Society, 7 P.M.	44.9	31.0	37.9	15	10 7	19 5	after.	30 4	10	14 8	50
20	Tu	Meeting of Zoological Society, 9 P.M.	45.5	30.7	38.1	14	8 7	21 5	2 1	22 4	11	14 2	51
21	W	Meeting of Society of Arts, 8 P.M.	46.7	32.3	39.5	20	6 7	23 5	1 2	4 6	12	13 55	52

From observations taken near London during forty-three years, the average day temperature of the week is 46.1°; and its night temperature 31.1°. The greatest heat was 59°, on the 16th, 1847; and the lowest cold 3°, on the 17th, 1855. The greatest fall of rain was 0.51 inch.

VINE DISEASE AND VINE STOCKS.

FROM my childhood I have cultivated the Vine, and, having suffered disappointment on more than one occasion, I can sympathise with those who have shared the same fate. Being a lover of the Vine, I wish to direct the attention of your readers to the existence of a widespread disease which is destroying the Grape Vine in this country (the United States), and which I have reason to believe will ultimately prove a source of annoyance and disappointment to the Grape-growers of England.

The subject of the Grape-leaf louse has been exhaustively treated of by Mr. C. V. Riley in the columns of the *Rural New Yorker*, and from his communications I shall freely quote. Mr. Riley refers to the decline of the Grape in this country, and states, "I have at last ascertained the one real and principal cause of this decline, and that knowing the cause, we may in a measure obviate it, will doubtless cause many a Grape-grower to wonder. This destructive agent is none other than a little insect that has long been known in this country by the name of THE GRAPE-LEAF GALL LOUSE (Phylloxera vitifoliæ, *Fitch*).

"I use the specific name first given to the insect by Dr. Fitch, of New York, simply because it is the best known in this country, and suffices for my present purpose. The name itself is perhaps objectionable, and so little was known of the true character of the louse when Dr. Fitch described it, that he did not even refer it to its proper genus. It is doubtful, therefore, whether the accord of the entomological world will be given to this name, notwithstanding its priority, in the place of Phylloxera vastatrix which Planchon first correctly gave to the root-inhabiting form, and which has been generally recognised abroad. The same may be said of Westwood's name Peritymbia vitisana, which was also proposed for the same insect in 1868 in a communication to the Ashmolean Society of Oxford, England.

"The Clinton Vine and its near relatives have long been known in this country to be subject to the attacks of an insect which covers the leaves with galls. No one, however, dreamed that the roots of our Vines were afflicted with a similar insect until last fall, when I showed that the gall louse wintered on the roots. These facts were published in my last report, from which I quote the following paragraph in order to give the recorded history of the insect. It will be seen from these extracts that the first mention of the galls in print was in 1856; but there is good evidence that they were noticed, and even referred to, many years before, without any real knowledge of their character.

"The first reference to this insect was briefly made by Dr. Fitch, of New York, in the year 1856, and he subsequently described it in a very insufficient manner under the name Pemphigus vitifoliæ. Ten years afterwards this louse was again referred to by myself in the *Prairie Farmer* for August 3rd, 1866; and during the fall of the same year articles were written upon it by Dr. Shimer, and by my late associate, Mr. Walsh; the former claiming that it was a true plant louse (Aphis family), and the latter that it was a lark louse (Coccus family). In this Dr. Shimer was evidently right and Mr. Walsh wrong. In January, 1867, Dr. Shimer proposed for this insect a new family, Dactylœsperidæ, which in my opinion cannot stand.

"During all this time a serious disease of the roots of the Grape Vine began to attract attention in the south of France, and it finally caused such alarm that the Minister of Agriculture and Commerce in France offered a prize of 20,000 francs for the discovery of an efficacious and practical remedy. In France the disease is known as Pourredie, or rotting. It is in the form of little cancerous spots, which cut off the supply of nourishment, and cause the roots to rot; and these spots were ascertained by MM. Planchon and Lichtenstein, of Montpellier, to be caused by a louse (Phylloxera vastatrix, *Planchon*) which bears a close resemblance to our gall louse. This is not all, for a leaf-gall, absolutely identical with ours, also occurs there, and the identity of the gall-inhabiting with the root-inhabiting insect was demonstrated by 'I. O. W.' in the *Gardeners' Chronicle* (of England) for January 30th, 1869; and M. J. Lichtenstein even contended that the European species was identical with ours, and imported from this country, in which opinion he was supported by A. Combe.

"In the latitude of St. Louis, Missouri, the first galls are noticed about the middle of May, and by the middle of June they begin to be quite common. The galls vary somewhat in appearance according to the Vine upon which they occur. The few individuals which start the race early in the year station themselves upon the upper sides of the leaves, and by constant suction and irritation soon cause the leaf to swell irregularly on the opposite side, while the upper part of the leaf gradually becomes fuzzy and close, so that the louse at last sinks from view, and is snugly settled in her gall. Her bulk increases during pregnancy. Eventually she grows to be plump and swollen, acquires a deep yellow or orange tint, and crowds the space within the gall with her small yellow eggs, numbering from fifty to four or five hundred, according to the size of the gall. The young lice are pale yellow. As soon as they are hatched they escape from the gall through the orifice in the upper surface of the leaf, which was never entirely closed, and taking up their abode on the young and tender leaves, in their turn form galls. The mother louse, after completing her deposit, dies, and the gall which she occupied dries up. There are several generations during the year, and this process goes on as long as the Vines put forth fresh leaves. As the galls multiply, and the growth of the Vine becomes less vigorous, the young lice sometimes so completely cover the upper surface of the newly-expanded leaves as not to leave room for them all to form galls. In this event the leaf soon perishes, and the lice perish with it. Those leaves which have been badly attacked turn brown or black, and sooner or later fall to the ground, so that the Vine may be entirely denuded.

"By August the insects become so prodigiously multi-

plied that they often settle on the tendrils, leafstalks, and tender branches, where they form excrescences and gall-like growths, differing only from those on the leaves in such manner as one would naturally expect from the difference in the plant tissues. After the Vine has finished its growth, the young lice, finding no more succulent and suitable leaves, begin to wander and seek the roots; so that by the end of September the galls are deserted.

"The young hatched from the eggs on the roots are absolutely indistinguishable from those hatched in the galls; and the gravid apterous female differs in no respect whatever from the mother gall louse. The females on the roots seem to be less prolific than those on the gall, and their eggs, if anything, are rather larger. These eggs are always of a bright yellow, and on the dark root are detected with the naked eye as readily as the lice, which become darker, or a dull orange, as they grow older.

"The insect is found on the roots in all stages during the summer months. In the winter it is found dormant, principally in the larva state, and no eggs are to be seen. With the circulation of the sap in the spring the activity of these young recommences, and in a short time afterwards eggs are deposited again. At this season the punctures of their little beaks produce very decided swellings, and an excess of moisture at the wounded parts. The winged forms are by no means uncommon, and commence to issue from the ground perhaps as early as July."

Mr. Riley examined a large number of Vines in and distant from St. Louis, and I shall merely quote the result as regards a few. "Vitis vinifera (European). All European varieties with roots badly affected. In many instances decomposed and gone, with the Vines about dead. No leaf-galls. Concord (native variety), no leaf-galls, scarcely any root-lice. Almost entirely exempt." From the researches of Mr. Riley a large number of our native varieties suffer to a great extent; but as it would not interest your readers, I shall not occupy space by quoting the results of his researches, but merely refer to the fact that, in accordance with his experience, the Concord probably suffers less from the Vine louse than any other variety.

For a lengthened period it had been a well-recognised fact that European Grapes would not succeed in this country under ordinary garden culture. Grapes being a marketable fruit, a number of persons endeavoured to supply the national want by the raising of seedlings, some purely native, and others hybrids between native and European varieties. Hundreds of varieties were raised and disseminated; but experience established the fact that only a limited number remained healthy and luxuriant in any soil and situation.—Al Fresco, *New Jersey, U.S.*

(To be continued.)

THE ROYAL HORTICULTURAL SOCIETY.

ANNUAL GENERAL MEETING.

FEBRUARY 13TH.

The Annual General Meeting of the Royal Horticultural Society was held last Tuesday afternoon in the Council-room, South Kensington. In the unavoidable absence of Lord Henry G. Lennox, M.P., the chair was taken by G. F. Wilson, Esq., F.R.S.

The Chairman said he had received a letter from Lord Henry Lennox, M.P., who was expected to have presided at the meeting, stating that important matters had prevented him doing so.

Mr. Richards, the Assistant Secretary, read the Minutes of the last annual meeting, which were confirmed.

Messrs. Fortune and Moore were appointed Scrutineers for the ballot.

The Assistant Secretary then read the Annual Report, which we append.

The Chairman said that was the time for any Fellow who had a remark to make upon the Report to do so. He might observe that the accounts were annexed to the Report and had been circulated with it.

Mr. Blenkins said it afforded him much pleasure to move that the very satisfactory Report which they had just heard read should be received and adopted by the meeting. He thought he should have the concurrence of all the Fellows present when he said the Report was a really satisfactory one [hear, hear]. Last year, when he had the honour of seconding the adoption of the Annual Report, he took occasion to remark that he entertained a firm belief that a union between the Exhibition Commissioners and the Council of the Royal Horticultural Society would be highly beneficial to the latter. The highly satisfactory Report which had been presented to them that day showed he was right when he anticipated this improvement. He hoped this union would long continue, and that they should receive from it not alone their present advantages, but the still further privileges which the continuance of exhibitions must ensure [hear, hear]. With these few remarks, he had much pleasure in moving that the Report be received and adopted.

Professor Tennant said he should, in seconding the motion for the adoption of the Report, make one or two suggestions which might be found useful. It was well known that the Society gave to their members tickets which admitted persons to the gardens on certain days of the week; but unfortunately these tickets were not available on Sunday, the very day when many people could most conveniently visit them [hear, hear]; the day to which many a one would look forward during the week for a pleasant day in the gardens. What was refused in this Society was conceded in others. In the Zoological Society, for instance, the system of issuing tickets of admission for Sunday worked with a marked success; and in that Society the plan existed of giving to members tickets to admit two persons on Sundays. The Horticultural Society should, he thought, take this matter into consideration; and he was confident, if they did adopt the plan referred to, the Society would be a considerable gainer by it. The plan which worked best was to give tickets regularly dated, so that no member could give more than two admissions for any one day. Formerly, in the Zoological Society, the members were very liberal in getting and giving tickets, but not in paying their subscriptions [a laugh]. That had been obviated now by not giving tickets to any member who had not paid up his subscription [hear, hear]. He begged to second the motion.

Mr. Wooster said he must take exception to the expense set down in the accounts for the tents, which certainly were the greatest eyesores the Council had ever had to put up with. He presumed the Council had sanctioned the construction of what was a remarkably handsome tent, and which it was a pity had been destroyed. Now, there was a tent erected at the lower part of the garden, which would have been a disgrace fifty years ago [hear, hear]. He felt it was a shame these tents cost so much. One thing he was very pleased at, and that was that the Council had decided upon the appointment of a Botanical Professor, who by lectures, answers to personal inquiries, and other means, should assist in establishing a more correct knowledge of the principles of botany and horticulture. That he looked upon as a step in the right direction [hear, hear]. It was a great advantage to be able to have one's questions answered, and he had known many instances in which Fellows had not been able to obtain the information on botanical and horticultural subjects which they sought, and which was so essential to those whose tastes lay in that direction [hear, hear]. The action of the Council in this respect could not fail to prove highly beneficial to the Society.

Mr. Godson said he should preface the few remarks he was about to make by proposing, of course as a suggestion to be considered by the meeting, that his Royal Highness Prince Arthur, whose name stood on the balloting list for the Council, should be elected by acclamation, as was usual in the case of members of the Royal Family [cheers]. He was glad his suggestion had met with the approval of the meeting, as he had felt certain it would. Coming now to the statement of accounts, he found in the capital account an item of £700 disallowed by the Expenses Committee. Now, he hoped some reason would be given why that £700 had been disallowed. He was sorry to disturb the harmony with which the Report had been received, but he thought it right to say he did not think they should be playing fast and loose in the way they were. Looking at the way in which the election of the Council was managed, he could not help bringing under the notice of the meeting, that one year they had a gentleman voted out, and the next year they had him voted in. This year, for instance, they had one man voted out, and another voted in. Now, with all deference, he thought that looked too much like a family compact. He thought all the Fellows ought to have a chance of being placed upon the Council, because it was an honour now in a peculiarly marked degree to be on the Council, as Royalty belonged to it [hear, hear]. In the Report Mr. E. J. Lowe was applauded and praised for what he did for the Society last year, and what was the gratitude shown him? Why he was sent out of the Council this year [hear, and a laugh]. Looking at the circumstances under which Mr. Lowe was praised in the Report, seeing that the Council say with respect to the Show at Nottingham, that—"Besides having produced a Show of unusual beauty and interest, they realised a net profit of £774, a result which the Council feel to be in a great measure due to the devoted and untiring labours of one of their number, Mr. E. J. Lowe," he thought that gentleman ought to have been kept on the Council, and he believed the meeting would be of the same opinion. There was another point which he had no doubt the Secretary would explain. How was it, he should like to know, they were charged £2400 for rent to Her Majesty's Commissioners of 1851 in respect to the gardens, and yet no income tax was allowed? Now, £50 or £60 was, he thought, a matter worthy of considera-

tion. He did not like making these remarks, but he could not help doing so when he read in the Report this passage :—"The Fellows will find that notwithstanding the reduction of the establishment at Chiswick, its expenses have last year risen from £1335 8s. 7d. to £2060 19s. 11d. The explanation of this is the large drafts made on the garden at Chiswick by the establishment at South Kensington, rendered necessary by the International Exhibition." Now, that had never been admitted before. He thought his Grace the Duke of Devonshire was entitled to their thanks for the manner in which he had acted with respect to the Chiswick property [hear, hear]. Another observation he wished to make was with reference to the fact, that while people paid 1s. 6d. each to go into the Exhibition, those who went round by the Gardens the same day and hour had to pay 2s. 6d. He hoped that state of things was or would be corrected [hear, hear], and he felt satisfied if the £2400 rent paid to Her Majesty's Commissioners of 1851, and other payments and monies were taken into account, it would be found that the Society was not under those great obligations to the Commissioners which it was probably thought they were. When they found that only £388 13s. had been given for the rent of the two arcades, the meeting would have the whole case of the Exhibition before them; and he could only say he thought the Commissioners might act more liberally than they did [hear, hear]. He hoped a fair explanation would be given on the points to which he had called attention. It was as a matter of justice, which was due to the other Fellows who had not an opportunity of criticising the Report, that his observations had been made; and he hoped, if they had any weight with the Council, that the subject matter of them would be gone into as soon as possible [hear, hear].

The Chairman, replying to the remarks of the several speakers, said his friend who seconded the adoption of the Report suggested that greater facilities as to the acquisition of tickets to the gardens should be given. That was a matter entirely for the Fellows themselves [hear]. Of course the great object the Council, and, indeed, all connected with the Society, had in view, was to keep the gardens as quiet as possible on Sundays [hear, hear]. Increased facilities for admission would, of course, bring more people to visit the gardens than might be altogether agreeable [hear]. He should put it to the meeting whether they would vote for or against this suggestion for increased facilities for admission to the gardens.

Mr. Godson.—You must have a special meeting for that purpose.

Professor Tennant.—At present it is merely a suggestion thrown out, and not a direct motion.

A Fellow.—The Botanic Society, at the Regent's Park, entertained a similar suggestion without calling a special meeting.

The Chairman said the question was really one which involved that of increased privileges. Mr. Wooster had spoken of the loss of the large tent, but he might remark it had one disadvantage —it was like a white elephant, very expensive—and it was on ground which the Society had to give up at six months' notice. Mr. Godson suggested that His Royal Highness Prince Arthur should be elected on the Council by acclamation, and he (the Chairman) had much pleasure in putting that motion to the meeting.

Mr. Godson seconded the motion, which was carried amid cheers.

The Chairman observed that Mr. Godson had made some remarks as to Mr. Lowe being removed from the Council. That was a matter which did not, by any means, rest with the Council. A bye-law existed which provided that two members of the Council should go out every year by reason of non-attendance, the object being to keep new blood in the Council. Mr. Lowe, on the present occasion, was one of those who went out for non-attendance, and only on account of non-attendance. Mr. Godson also spoke of the £2400 rent paid the Commissioners, without deduction of income tax. In reply to that observation he might say £2400 was the sum fixed for rent without the question of income tax being at all entertained.

Mr. Godson.—The Act of Parliament makes it imperative that the income tax should be allowed, and I am surprised that the Treasurer does not know that as well as his A B C [laughter].

The Chairman.—This £2400 was paid for rent, but will you please remember we owe five or six years' rent which we have not paid? [hear, hear.]

The motion for the adoption of the Report was then put and carried unanimously.

Mr. Richards (Assistant Secretary) said the votes were unanimous in favour of the election of the officers named by the Council, and with respect to the new Councilmen, there was one dissentient. The following is the list of officers elected:—President, His Grace the Duke of Buccleuch, K.G.; Treasurer, Mr. John Clutton; Secretary, Major-General H. Y. D. Scott, C.B.; Expenses Committeemen, Mr. John Clutton, Mr. W. Wilson Saunders, F.R.S.; Mr. Sigismund Rücker, F.L.S. Auditors, Mr. James Nicholson, Mr. John Gibson, Mr. Robert Hudson, F.R.S. The names of vacating members of Council were Major R. Trevor Clarke, Rev. Joshua Dix (deceased), Mr. E. J. Lowe, F.R.S. The names of Fellows recommended by the Council to fill the above-mentioned ordinary vacancies were H.R.H. the Prince Arthur, Mr. Arthur Grote, F.L.S., and Mr. Andrew Murray, F.L.S.

Mr. Fernyhough said he had heard many complaints respecting the annoyance caused by children at the musical promenades, and by the fact that the servant girls took for themselves the very best places to be had [hear, hear]. Perambulators and hoops were undoubtedly a nuisance when music was being played, and probably the Council might adopt some remedy for it.

Mr. Wooster suggested that terra cotta medallions of the most eminent botanists should be placed in the niches of the arcades. On the capitals, too, he should suggest that floricultural groups should be placed—a suggestion which had been carried out at Oxford.

General Scott thought it would be a mistake to put the busts of distinguished botanists on the walls referred to. He had heard various opinions as to the Oxford capitals, but there was an old saying, "Beggars must not be choosers." The Society had not paid for the capitals, and it would be difficult to get sculptors equal to the task proposed. It should be remembered that the Commissioners had gone to the expense of making all the improvements round the gardens; and that they were not done by the Society at all. There was plenty of space for busts, even busts of full size.

The Chairman said, with reference to the remarks of Mr. Fernyhough, the Council would do the best they could to reduce or abate the annoyance complained of, but it would be a difficult position to be placed between the Council and the mothers [laughter].

General Scott had considerable sympathy in this subject with the fathers and mothers of the children, for he had a large family himself; but he should think a change, having for its object that there should be only one child admitted per ticket instead of two, would meet the difficulty. That was a subject on which he thought the meeting should express an opinion, because it was upon matters like these the Council wanted their hands strengthened [hear, hear]. Then as to the Sunday admissions, the Council would try to do what they could; and upon this question also the meeting ought to express its opinion.

Mr. Blenkins believed they were all delighted to see the children in the gardens when they were well-behaved; but he thought that on show days, or music-promenade days, certain instructions ought to be given to the attendants to have the annoyance caused by the children abated [hear, hear]. At the same time, there could be no doubt that there could be no better place in which to have the tastes of children cultivated than in these gardens [hear, hear].

A Fellow asked whether the trellis division in the gardens was about to be removed, as many of the Fellows very much objected to it, because they could not get to that part of the gardens without running the gauntlet of the weather.

The Chairman said it was not intended to remove the trellis-work.

After a vote of thanks to the Chairman the proceedings came to a close.

Report of the Council to the Annual General Meeting.

1. The Council, in their last year's Report, expressed a confident expectation that the International Exhibition, then about to be opened under the direction of Her Majesty's Commissioners, would tend greatly to the advantage of the Society. Their anticipation has been fully realised, and they have the gratification of announcing to the Fellows that the Society has participated largely in its success. Not only has it profited by the Exhibition being made accessible to them and their families on especially favourable terms, but the result of the arrangement entered into with the Commissioners (by which, in consideration of the temporary use of the Arcades and other facilities given by the Society, it should receive a payment by way of a royalty of 1d. for every visitor to the Exhibition), has been to place to their credit a sum of £5030 0s. 11d.

2. It was not to be expected, nor did the Council ever anticipate, that so important an operation could be carried through, and so large an increase to their income for the year be acquired, without some reduction of certain sources of income on which the Society had been accustomed to rely. The amount of such reduction, however, has been small, as will be seen by a comparison of the different items of receipt and expenditure in last year's statement of accounts, with that which accompanies this Report.

3. On turning to the side showing the receipts, it will be found that the sum received this year for annual subscriptions shows no material difference; the amount received this year being £7115 17s., as against £7177 last year. The number of Fellows continues nearly the same. The items where the receipts have

fallen, and where the fall may be directly traced to the Exhibition, are the daily admissions and promenades, the rent of space in the arcades, and the produce of Exhibitions and Fêtes. The sum received for daily admissions and promenades has fallen from £463 6*s.* 9*d.* to £172 4*s.* 1*d.*; the rent of space in the arcades, from £424 to £388 18*s.*; and the produce of Exhibitions and Fêtes, from £9277 7*s.* to £634 6*s.* 1*d.* A considerable diminution in the receipts for garden produce was of course to be looked for after the garden at Chiswick had been so much reduced in size, at all events until the new arrangements are in working order. It has, however, proved much less than the Council anticipated —viz., from £578 5*s.* 11*d.* to £349 15*s.* 4*d.* The alterations at Chiswick have been completed, and the new walls built, the expenses having partly been borne by the adjoining tenant and partly defrayed from the sale of plants and other produce in the ground given up.

4. The Council have the pleasure to announce that although in the year 1870 the Society sustained a slight loss from the Show at Oxford, this last year they more than redeemed it at Nottingham. Besides having produced a Show of unusual beauty and interest, they realised a net profit of £774, a result which the Council feel to be in a great measure due to the devoted and untiring labours of one of their number, Mr. E. J. Lowe.

5. Turning to the other side of the account, the Fellows will find, that notwithstanding the reduction of the establishment at Chiswick, its expenses have last year risen from £1335 8*s.* 7*d.* to £2060 19*s.* 11*d.* The explanation of this is the large drafts made on the garden at Chiswick by the establishment at South Kensington, rendered necessary by the International Exhibition.

6. On South Kensington Garden the expenses have also been considerably increased, the amount this year being £3802 2*s.* 6*d.* instead of £2359 10*s.* 7*d.* The expenses of Exhibitions last year were £1484 7*s.* 7*d.*, this year they amounted to £1916 8*s.* 4*d.* This increase must be regarded as part of the necessary outlay required to produce the receipt of £5030 11*s.* from the Exhibition.

7. It is also to be observed that the amount of Kensington Garden expenses is largely increased by the payment of £500 to Mr. Foley for his exquisite piece of sculpture, "The Boy at the Stream," which was produced under arrangements initiated by H.R.H. the Prince Consort, at the establishment of the garden at South Kensington in 1861, and which has remained unexecuted until now. The work, though ordered in 1862, was delivered only in 1870.

8. Another large item which the Fellows will observe in the expenditure is £500 paid on account of tents. This is the first instalment of a payment of £1400, which those two fine tents now in the gardens will cost. These tents had become essential to the continued success of the Society's Shows.

9. The foregoing is a brief summary of the working business of the past year. It now remains to say a few words in anticipation of that of the coming year. The Council have only two alterations of any moment in view, but both are important. Many Fellows who were in town during the period of the Exhibition, and who availed themselves of their privileges, may have felt some degree of inconvenience from the arrangements with the Exhibition Commissioners as to entrance into the Exhibition and gardens, and all of them must have agreed that it would have been a very great boon had their Fellows' tickets admitted them to the Exhibition on the same footing that they did to the gardens. Feeling this, the Council have endeavoured to make arrangements with the Commissioners, by which this privilege should be acquired, and they have the satisfaction of announcing to the Fellows that the Commissioners have agreed to grant the privilege sought by the Council for the present year, in consideration of the use of the Quadrant Arcades by visitors to the Exhibition.

10. The other step is the appointment of a Botanical Professor, who, by lectures, answers to personal inquiries, and other means, shall assist in establishing a more correct knowledge of the principles of botany and horticulture, and of the names of plants, among those of the Fellows and their gardeners who are desirous to profit by the opportunity. An abstract of the duties proposed to be attached to the position is annexed, and the Council believe that they have secured a very competent botanist and horticulturist to undertake them, in the person of Mr. Thistleton Dyer, late Professor of Botany in the University of Dublin.

Duties of the Professor of Botany.

1.—General. — To conduct the scientific business of the Society, both horticultural and botanical. To enter into communication with horticultural and botanical establishments at home and abroad, and especially with the Societies in union with the Royal Horticultural Society.

2.—South Kensington.—To attend the meetings and exhibitions of the Society, and there note carefully, and report upon all objects of merit, for publication by the Society; also to pay attention to the correct naming of the plants exhibited.

To aid the Rev. M. J. Berkeley at the Wednesday meetings.

To be at the offices one afternoon in each week, for the purpose of answering any scientific inquiries which may be made by the Fellows.

To edit any publications which the Society may issue.

To give a series of lectures on subjects connected with scientific horticulture to the Fellows and others during the session, as the Council may direct.

To take charge of the library and look to its increase.

3.—Chiswick.—To take care that all plants of botanical interest be properly named.

To inspect all scientific experiments made in the garden, to report the results, and offer suggestions for further experiments relative to scientific horticulture and the growth of plants.

To be present one afternoon each week to give information on such points as may be necessary to Fellows and gardeners of Fellows, and to receive from them plants which may require botanical names.

To give a series of lectures each year to the students in the gardens and the gardeners of Fellows on scientific horticulture and botany.

To report monthly on the meteorological observations made in the garden.

To form one of the Horticultural Board of Directors.

Extracts from the Reports of the Horticultural Directors.

Scientific Committee.—Under the peculiar circumstances of the gardens at Chiswick in 1871, it was impossible for the Board of Direction to do more than apply all their energies to the best mode of carrying out the necessary alterations. In consequence of the lateness of the season at which anything effectual could be accomplished, there was considerable anxiety as to the fate of the valuable stock, which could not be removed till a period far later than was desirable. It is, however, with great pleasure that they are able to report that the removal of the trees was most successful. Partly from constant care, and partly from a very favourable condition of weather, not a single plant of any value failed, and the gardens must now be considered as in a most satisfactory condition. The Board will now be prepared to carry out any horticultural experiments which may be suggested, while it is hoped that, under the regulations proposed by the Council for Lectures to Students, the gardens may become a very valuable school for horticulture. The Board cannot help congratulating the Society in having been able to retain the services of Mr. Barron, which could not possibly have been very well replaced.

Pomological Department.—What has chiefly occupied attention in the pomological department during the past year has been the preparation and furnishing of the ground, in the new arrangement of the garden, with the fruit trees that were removed from the old orchard. The advantages of this reconstruction are now apparent, and not the least important of these is the classifying of the trees, by which facilities are obtained for comparing and judging of the different varieties. The Board take this opportunity of testifying to the skill displayed by Mr. Barron in the way the new arrangements have been carried out and completed. Although the whole of the open space appropriated to the fruit department has been completed, the new boundary walls have yet to be furnished. Steps have been taken, and are now in progress, to obtain such trees as are adapted for that purpose, and ere spring has much advanced as complete a collection of Apricots, Cherries, Peaches, and Nectarines, as it is possible to obtain shall have been secured, and the former high reputation of the Chiswick garden for its pomological collections will have been restored. Up to the present time there exist, under the successful re-arrangement of these, about 400 sorts of Apples, 350 of Pears, 300 of Plums, 430 of Cherries, 220 of Vines, and 100 of Figs. Of the last there are yet many varieties that have not been determined.

Besides the work of reconstruction, an extensive experimental trial of the numerous varieties of Borecole or Kale has been made, by which the confusion so much complained of will be cleared up, and the various names by which the varieties are known will be referred to their proper places. This season arrangements have been made for a trial of Peas, of which the varieties have become so numerous, and the confusion of names so complicated, since the last great trial in the garden.

In the Great Vinery there is a very marked improvement in the condition of the Vines since the enlargement and re-dressing of the border, and the heading-down of some of the varieties. The new Grape, Madresfield Court, which was at first supposed to be a variety requiring hot treatment, has proved to be one of the very best for a cool house, equalling if not surpassing the Black Hamburgh in the high condition it attains under such circumstances. A Vine of this variety was planted in company with one of the Black Hamburgh in the Rev. Mr. Fountaine's vinery, which was erected in the garden, and although the house has no provision of any kind for being artificially heated, the Madresfield Court Grape ripened thoroughly, and was considered to be much better adapted for such a situation than the Black Hamburgh.

As usual, the Fellows have made good use of the privilege afforded them in obtaining scions of fruit trees and seeds from

the garden. During the past year the distribution of each has been as follows :—

60,000 packets of vegetable seeds.
4,500 packets of cuttings of Figs, Vines, and other fruit trees.
600 plants of Figs distributed by ballot.

Floral Department.—Owing to the alterations which have been in progress at Chiswick, but little opportunity was afforded during the season of 1871 for carrying on the usual trial of flowers. These alterations have included the formation, in the vicinity of the Council Room, of a new series of beds for the growth of Trial Plants; and though it was late in the season before these beds were completed, a collection of Bedding Pelargoniums was nevertheless got together, and planted ont in time to make satisfactory progress. These were examined in the month of August by the Floral Committee, when the following awards were made :—

First-Class Certificates.—*As Flowering Plants:* Lawrence Heywood, Charley Casbon, Mrs. Mellows, Lady Kirkland, Stanstead Rival, R. Bowley, Waltham Seedling, Louis Veuillot, Penelope. *As Foliage Plants:* Goldfinder, Macbeth, Louisa Smith, Black Douglas.

Second-Class Certificates.—*As Flowering Plants:* Demosthenes, Arthur Pearson, Murillo, Triomphe de Stella, Augustine Rongier, The Champion, Mrs. Menzies, Mdlle. Nillson, Cleopatra, Acme, Madame Lemoine. *As Foliage Plants:* Miss Batters, Florence.

In the present season it is proposed to continue the trials of bedding Pelargoniums, and to add in the out-door department collections of Pentstemons and Phloxes, and in the in-door department of Fuchsias—all of which have been much augmented as to the number of varieties, and materially improved as regards quality, since the former examinations of them were made.

On the wall bounding the trial ground on the west, it is proposed to grow examples of Ornamental Hardy Climbers, instead of fruit trees as heretofore. Contributions for this object will be acceptable. Notwithstanding the reduction of space in the garden, the collection of Herbaceous Perennials which had been recently acquired, has been retained, and any further accessions thereto, or to the class of Hardy Bulbs, especially Lilies, would be welcomed.

The Chiswick garden has contributed, during the past year, to the garden at Kensington, the following supplies—viz., For the decoration of the Conservatory about 20,000 plants; and for other purposes of furnishing and decoration, about 50,000 plants.

The distributions made to the Fellows during the year, in this department, have comprised 7000 useful plants, allotted by ballot, and 60,000 packets of flower-seeds.

Statement of Accounts from January 1st to December 30th, 1871.

Receipts.

	£	s.	d.	£	s.	d.
To Life Compositions	945	0	0			
„ Admission Fees	430	10	0			
„ *Annual Subscriptions	7760	12	0			
„ †Garden Produce and Charges	349	15	4			
„ Daily Admissions and Promenades	172	4	1			
„ Rent of space in Arcades	388	13	0			
„ Exhibitions and Fetes	654	6	1			
„ Miscellaneous	35	19	11			
„ Interest on Davis Bequest	59	8	1			
„ Profit on Provincial Show Accounts (Balances)	844	7	9			
„ Entomological Collection	20	0	0			
„ Alterations at Chiswick	25	10	6			
„ Annual International Exhibitions	5030	0	11			
				16,716	7	8
*Assets. Subscriptions unpaid	700	0	0			
†Garden Produce, due but unpaid	80	0	0			
	780	0	0			

Expenditure.

	£	s.	d.	£	s.	d.
By Balance from 1870				1513	9	6
By Chiswick Garden Expenses—viz :—						
Rent, Rates, and Taxes	240	15	7			
Labour	985	3	8			
Implements, Manure, Coke, &c.	232	1	5			
Repairs	71	0	9			
Trees, Plants, and Shrubs	11	18	10			
Miscellaneous	64	11	9			
				1605	11	0
French Commissioners (for Repayment)				14	9	10
By Expense of Management—viz :—						
Salaries	536	17	9			
Horticultural Directors, Fruit, and Floral Committees, &c.	407	17	5			
Foreign Importations	5	0	0			
Examination of Gardeners	15	15	0			
Postages	68	0	0			
Distribution of Seeds, Plants, and Cuttings	60	4	11			
Reading Room	27	2	11			
Gas	12	14	3			
Wages	202	10	0			
Miscellaneous	48	9	8			
				1385	11	11
Annual International Exhibitions (for Repayment)				5	15	11
By Expenses of Exhibitions—viz :—						
Tents	500	0	0			
Advertising and Posting	234	14	0			
Prizes and Medals	997	12	10			
Bands	195	0	0			
Police	1	8	0			
Labour, Judges' Fees, Luncheons, and Sundries	247	1	3			
Expenses of Permanent Exhibition	87	2	1			
Superintendent of Flower Shows	91	13	4			
				2354	11	6
International Prizes	248	10	0			
„ Judges' Fees	300	0	0			
„ Sundries	50	0	0			
				598	10	0
By Kensington Garden Expenses—viz :—						
Labour	983	8	9			
Rates, Taxes, and Insurance	822	2	9			
Sculpture	500	0	0			
Water	71	14	0			
Repairs	551	16	10			
Implements, Manure, Coals and Coke	173	11	1			
Gravel	20	13	0			
Trees, Plants, Seeds, &c.	9	8	6			
Superintendent's Salary	100	0	0			
Miscellaneous	29	16	9			
				3262	11	8
Rent to Her Majesty's Commissioners of 1851				2400	0	0
Conversazione				84	6	1
By Interest on Debentures				1943	13	8
„ Liabilities of 1870 paid off				1592	1	7
„ Liabilities on Current Account, £1597 0s. 3d.						
„ Ditto on ditto which may be considered as belonging to Capital Account—viz., Tents and Extra Planting, £1324 10s. 8d.						
By Balance				155	15	0
				£16,716	7	8

2nd February, 1873.

Audited and found correct,
James Nicholson,
Robert Hudson,
John Gibson,
} *Auditors.*

FRUIT AND FLORAL MEETING.

February 14th.

Last year the meeting held just one day later proved one of the best the Society ever had so early in the season, but this year the floral display was even better, the room being filled with numbers of choice Orchids, splendid masses of Chinese Primulas and Cyclamens, and such a diversity of other plants, that the whole formed, in fact, an exhibition of no small extent.

Fruit Committee.—George F. Wilson, Esq., in the chair. Reference was made to the recent sudden death of the late Mr. Thomas Osborn, a member of this Committee, and it was unanimously resolved to recommend to the Council that a letter of condolence be sent to Mrs. Osborn testifying to the valuable services rendered to the Committee by her husband.

Mr. James Allan, gardener to Lord Denbigh, Newnham Paddox, sent specimens of a Sprouting Kale, which the Committee considered a spurious form of Brussels Sprouts, and not superior to other varieties of Sprouting Kale already in cultivation. Mr. William Melville, of the Royal Vinery, St. Lawrence, Jersey, sent a collection of coloured Kales, some of which are proliferous on the midribs of the leaves; the latter are very beautiful, and received a cultural commendation.

Mr. Dixon, gardener to Lady Holland, Holland Park, Kensington, sent dishes of Beurré de Rance, Glou Morçeau, and Easter Beurré. All three were in excellent condition, and the flavour, especially Easter Beurré and Glou Morçeau, was unusually good.

Mr. Gilbert, gardener to the Marquis of Exeter, Burghley, sent the model of a box for preserving Grapes in a fresh state during exhibition, by means of water-bottles and a glass protection. The Committee approved the general principle, but decline to give an opinion upon the model till it has been put into practice.

Prizes were offered for the best three dishes of Dessert Apples, also for the best three dishes of Dessert Pears. In the former Mr. G. T. Miles, gardener to Lord Carrington, was first with Blenheim Pippin, Ribston Pippin, and King of the Pippins; and Mr. Parsons, gardener to R. Attenborough, Esq., Acton Green, second with the last two and Braddick's Nonpareil. For Pears the first prize was awarded to Mr. Stephenson, gardener to F. Barker, Esq., Leigh Hill, Essex, who had Winter Nelis, Glou Morçeau, and Passe Colmar. Mr. Gardner, gardener to Colonel Astley, Elsham Hall, Brigg, was second.

Floral Committee.—Dr. Denny in the chair. From Messrs. Veitch came a grand collection of Orchids, consisting of Lycaste Skinneri literally masses of flower, Dendrobium Hillii with three large spikes of pale yellow blossoms, a number of specimens of Odontoglossum crispum or Alexandræ beautifully coloured; Oncidium fuscatum, conspicuous by its purple-marked lip; the deli-

ciously-scented white-and-yellow-flowered Pilumna fragrans; Odontoglossum tripudians from New Grenada, a magnificent specimen of Cœlogyne cristata, quite a mass of white and yellow flowers; Lycaste Skinneri alba, a beautiful milk-white variety, with just a little yellow in the throat; Ada aurantiaca, Cypripediums, including the lively-coloured C. Schlimii, several Odontoglossums, Cypripedium vexillarium, and many others. Along with these were Hippeastrum Leopoldii and pardinum, both very showy, and the latter a very fine specimen. Messrs. Veitch also sent a collection of Palms, of which Kentia australis and Veitchia canterburyana, two very handsome species, both from Lord Howe's Island, had first-class certificates. The Veitchia in particular is likely to form a beautiful object for table decoration, the young leaves being of a lively green.

Mr. Ware, Hale Farm Nurseries, Tottenham, sent a basket of spring-flowering plants, in which Hepaticas of different kinds and Iris reticulata were the most conspicuous. Mr. Croucher, gardener to J. T. Peacock, Esq., Hammersmith, sent Agave Morganii, a Mexican species, also Agave Gibbsii from Brazil. Mr. C. Noble, Sunningdale Nursery, sent Thujopsis borealis aureo-variegata, with well-marked yellow variegation. This received a first-class certificate.

Mr. W. Paul exhibited several plants of his fine white Chinese Primula, Waltham White. From Mr. R. Clark, market gardener, Twickenham, came a beautiful collection of Cyclamens; and other collections in fine bloom came from Mr. Wiggins, gardener to W. Beck, Esq., Isleworth; Mr. James, gardener to W. F. Watson, Esq., Isleworth; and Mr. Goddard, gardener to H. Little, Esq., Twickenham, those from the latter being in many instances splendid masses of white, rose, and rosy purple blossom, while several were beautifully spotted.

Mr. Ware, Tottenham, sent a fine basket of Iris reticulata, and from the same exhibitor came a collection of Succulents.

Messrs. Rollisson, Tooting, contributed a fine miscellaneous group of Orchids, Palms, and stove and greenhouse plants. From Mr. Williams, Holloway, came Vanda suavis, Cœlogyne cristata in excellent bloom, and Angræcum eburneum. Mr. Denning, gardener to Lord Londesborough, Grimston Park, Tadcaster, sent in a splendid collection of Orchids a magnificent pan of Lælia anceps in which there were eighteen spikes of flower, some with as many as four blossoms, also beautiful specimens of Cœlogyne cristata, Odontoglossum Alexandræ, and Phalænopsis grandiflora, together with Odontoglossum nebulosum and Cattleyas.

From Mr. B. Johnson, gardener to T. Clarke, Esq., Swakeleys, Uxbridge, came a remarkably fine specimen of Daphne indica rubra, balloon-trained, and bearing a profusion of flowers. Messrs. Standish & Co., Ascot, sent a large collection of forced flowers, as Bouvardias, Hyacinths, Spiræa japonica, Geraniums, and Cinerarias. Among the last-named were several remarkable for their newness and intensity of colour. Mr. Howard, gardener to J. Brand, Esq., Balham, contributed pans of Lily of the Valley, exceedingly well grown, and a very choice bouquet.

Mr. Wilson, gardener to W. Marshall, Esq., Enfield, sent two plants of Masdevallia ignea, one with four, the other with seven scapes, but these were not all fully developed. The four, however, were beautiful. Two boxes of beautiful cut blooms of Camellias were exhibited by Mr. William Paul, of Waltham Cross, and collections were likewise shown by Mr. Grant, gardener to J. B. Glegg, Esq., Withington Hall, Cheshire, and Mr. Howard, Balham.

From Mr. Speed, gardener to the Duke of Devonshire, Chatsworth, came a beautiful raceme of Amherstia nobilis, a tree which has several times flowered there before, and of which a full account will be found in vol. x., page 240. Mr. Richards, gardener to Baron Rothschild, Gunnersbury, sent Odontoglossum Alexandræ with very large flowers. Messrs. Carter & Co. exhibited Prince of Wales, Princess Royal, and other Caladiums; and Mr. Bull, Odontoglossum odoratum, yellow, spotted with brown, but so far as we could make out scentless, or nearly so, also Masdevallia ignea, poor compared to the specimens from Mr. Wilson. Mr. Williams, of Holloway, exhibited Davallia Tyermanni, a pretty dark green graceful Fern; Tillandsia Lindeni major, with beautiful deep blue flowers; Odontoglossum tripudians oculatum, and a group of hybrid Solanums. From Mr. Green, gardener to W. Wilson Saunders, Esq., came Rhipidodendron plicatile majus, a South African succulent plant, somewhat resembling a lady's fan. Mr. D. Ferguson, Hounslow, exhibited propagating-glasses, consisting of a flat piece of glass fixed in a circular rim of sheet iron. It appears to us that a piece of glass placed over the pot would answer equally well, and be less expensive. Mr. Matthews, Weston-super-Mare, sent Gibson's Orchid pots, with perforated sides and false bottoms, said to be much superior to the ordinary perforated pots.

Two prizes were offered for the best six Chinese Primulas, distinct; the first was taken by Mr. Goddard, gardener to H. Little, Esq., Twickenham, who had really distinct and rich-coloured varieties, also very well flowered. No second prize was awarded, but an extra was given to Messrs. Dobson, of Isleworth, who, along with Messrs. James and Tomkins, had plants in excellent bloom.

Mr. William Paul, Waltham Cross, offered three liberal prizes for three plants of his Waltham White Primula, but there was only one exhibitor—namely, Mr. J. Scott, gardener to J. B. Howitt, Esq., Enfield, who took a first prize.

The best three plants of Dielytra spectabilis were exhibited by Mr. George, gardener to Miss Nicholson, Putney Heath; Mr. Denning coming in second with larger plants but not so well bloomed.

The only collection of six Lycastes was that shown by Mr. Denning; it contained one splendid specimen of Lycaste Skinneri, others fine, and one plant of the white kind.

First-class certificates were awarded to Messrs. Veitch for Kentia australis and Veitchia canterburyana; to Mr. Williams for Davallia Tyermanni; to Mr. C. Noble for Thujopsis borealis aureo-variegata; to Mr. Green, gardener to W. Wilson Saunders, Esq., for Rhipidodendron plicatile majus; and to Mr. Croucher for Agave Morganii and A. Gibbsii. Mr. Bull had a second-class certificate for Odontoglossum odoratum. Cultural commendations were given to Mr. Tomkins for Chinese Primulas; to Mr. Speed for Amherstia nobilis; to Mr. Grant and Mr. W. Paul for cut Camellias; to Mr. Johnson for Daphne indica rubra; to Mr. Richards for Odontoglossum Alexandræ; to Messrs. Veitch for their group of Orchids, also for Hippeastrum pardinum; to Messrs. Rollisson for a group of Orchids, &c.; to Mr. Williams for Orchids; to Mr. Denning for Pilumna fragrans, also for a collection of Orchids; to Mr. Wilson for Masdevallia ignea; to Mr. Laurence, gardener to Bishop Sumner, for Dendrochilum glumaceum; to Mr. Wiggins for Cyclamens; to Mr. Ware for a group of Succulents; to Messrs. Standish for a large group of plants; and to Mr. Howard, Balham, for Lily of the Valley and a bouquet.

Dissolving Bones.—"W. H. W.," *Reading, Mass.*, in the "Horticulturist," says:—"My mode of doing this is very simple and very effective. I have a large water-tight hogshead standing out-doors, near the kitchen. In the spring I cover the bottom about 6 inches deep with dry soil. On this I put a layer of bones of about the same depth, and cover them entirely with unleached ashes; on these another layer of bones, then ashes, and so on till the hogshead is full. I leave it then exposed to the rains all summer and winter until the next spring. Then, on removing the contents of the hogshead, I find nearly all the bones so soft that they will crumble to powder under a very slight pressure, and, mixed with the ashes and the soil, they give me a nice little pile of most valuable manure, ready for immediate use. Any of the bones not sufficiently subdued I return to the hogshead again for another twelvemonth's slumber."

PALMS FOR COOL CULTURE.

The following Palms will succeed in a temperature which does not fall below 38° or 40°, and are, therefore, peculiarly adapted for the decoration of apartments. It must, however, be borne in mind that small one-year-old plants should not be placed in so low a temperature, as they are not effective at that age, and grow very slowly under such treatment. It is preferable, therefore, to procure plants from three years old and upwards for this purpose. There are many other kinds which will succeed, but, on the whole, none of them are more satisfactory than those mentioned below. They require plenty of water during summer, but less in the winter, never being allowed to grow dry. A little liquid manure in spring is very beneficial, and is not offensive if some of the various patent kinds be used.

It is quite a pleasure to see the rapid progress Palms are making in the estimation of the public for general decorative purposes. The appearance they present to anyone seeing them in a room for the first time is perfectly enchanting. As a warning, however, let all amateurs avoid Geonomas, which—though as beautiful, dwarf, ornamental plants in a stove they are certainly unsurpassed—unlike the Chamædoreas, look miserable in the drawing-room, and become unpresentable after a week's trial—in fact, rapidly die.

Acanthorhiza stauracantha.—A native of Mexico; leaves palmate or fan-shaped, divided into broad segments quite down to the ligule or top of the petiole, dark green on the upper side, silvery white below.

Areca lutescens.—A beautiful species with graceful arching leaves, divided into narrow dark green segments; the footstalks are orange yellow freckled with black dots.

Chamædorea graminifolia.—This is certainly the most elegant of its genus, almost rivalling the much-prized Cocos

Weddeliana, and, indeed, proving to the amateur a superior plant, as it does not require stove heat like the Cocos. Stem slender; leaves pinnate, segments long and narrow, beautifully arched, and dark green, resembling a plume of ostrich feathers.

Chamædorea Wendlandi.—The best of the genus for room decoration, as I have abundantly proved; leaves pinnate, segments broad and bright shining green.

Chamærops excelsa.—Leaves deep green, fan-like, divided round the margin into narrow segments.

Chamærops humilis.—The only European species of this extensive and noble order. Leaves fan-shaped, divided into narrow segments about a third of their entire length, glaucous; footstalks armed at the edges with stout spines.

Livistonia australis.—Robust grower, exceedingly handsome; leaves nearly round, much plaited, and divided round the edges into narrow segments, rich deep green; footstalks dark brown, armed at the edges with stout sharp spines. A native of New South Wales.

Livistonia borbonica.—Leaves fan-shaped, divided at the margins into pendulous and bright shining green segments; footstalks armed with stout spines.

Malortiea simplex.—Stem slender; leaves entire, fringed at the margins, and deep green in colour; they are supported upon short very slender footstalks. It is a native of Costa Rica.

Kentia Baueri, from Norfolk Island, is a very beautiful unarmed Palm. Leaves pinnate and plume-like, with broad and rich green segments.

Seaforthia elegans of our gardens is a free-growing noble plant, with pinnate light green leaves, with long and broad segments. It is more correctly named Ptychosperma Cunninghami.

Phœnix dactylifera, the Date Palm of commerce (of which an illustration was given nine weeks back), with dark green pinnate leaves; very distinct and very hardy.—Experto Crede.

IRON FOR ROSES.

I read with great interest a late communication on this subject. I did not, on reflection, attribute the growth of the Rose to any manurial or tonic influence of the iron rust. The summer was very rainy, and the ground was much chilled. It is probable that the iron shielded the roots from the rain, and then when the sun came out the iron became heated and influenced the roots. Your correspondent would do well to try this season on two Roses of the same kind, in the same situation, and treated alike, two slabs of iron—the one painted on both sides, and the other in its rusty form. He may then be able to draw a conclusion. I know of only one plant that really likes iron in the soil—namely, the British Queen Strawberry. I should think that if iron abounded in soils it would be injurious to plants generally. Still, plants in the same family have likes and dislikes.

Much mischief was done last summer to Roses by fungoid disease. I never knew orange fungus so prevalent. The roots, moreover, were much injured by long-continued cold rains. The Roses here of all kinds look well. Soon after Christmas I cut away much damaged wood and useless spray, and shortened the remaining branches. I have three very successful specimens of Maréchal Niel whip-grafted on the Manetti stock, also one on the Briar, and one budded on the Gloire de Dijon. The Cloth of Gold would oftener succeed if people were to put an iron plate or stone slab over the roots.—W. F. Radclyffe.

A FEW RELIABLE ADDITIONS TO THE FLOWER GARDEN.

Amongst the first of these I ought to name Dracænas grandis, Cooperi, and terminalis, which cannot, of course, be reckoned novelties, as they are well known, and have already been classed among the more tender kinds of subtropical plants; but the Dracæna is a far more enduring plant when planted out of doors than many who are only acquainted with it as a stove plant would credit.

I have already drawn attention to it in this respect, and last summer's experience enables me to speak with more confidence about it. About midsummer I put out some two dozen Dracænas along with other fine-foliaged plants, and they kept their foliage intact till October. Japanese Maize, in the same group, was blown to ribbons, and had to be replaced with Acer Negundo variegatum in pots. Those who think of using the Dracæna this season should encourage the growth of plants that were struck last spring, and which ought to be 2 feet high by the time they are wanted. A fortnight or so before they are planted out the plants should be removed from the stove, and hardened-off in the greenhouse or in cold Peach houses: here we put them out in their pots, and then they are easily taken up on an emergency.

Kleinia repens.—This is one of the few succulents that will associate as a dwarf edging to ordinary bedding plants. Its short fleshy leaves are densely covered with a fine blue bloom, of a light and very pleasing shade, that will be found exceedingly useful as an intermediate colour. It is a dwarf-growing plant, and should be planted thickly. Cuttings will strike at any season of the year if afforded a temperature ranging from 55° to 65°, and kept moderately dry. It is about the easiest plant to propagate that I know. I began with about a dozen plants last spring, and shall have three or four thousand by bedding-out time, and could have had more if needful. The bloom on the leaves will resist heavy rains.

Pachyphyton bracteatum (Succulent). — This is another beautiful little plant, forming a very neat, dwarf rosette, with leaves of a rich cream colour. It does not take so kindly to the society of ordinary bedding plants as the Kleinia, but it makes an extremely pleasing foreground to the latter, and in this way the contrast may be toned down very well. Unfortunately it is difficult to propagate; though we began with a better stock than we had of the Kleinia, we shall not have hundreds of the one for thousands of the other. The Pachyphyton is best propagated by seed, if it can be got, and by leaves, which should be taken off carefully, and laid in rows on the surface of the soil in a pan or pot, and otherwise treated the same as the Kleinia. Each leaf, if carefully managed, will put forth a crowd of little ones at the base.

Variegated Lemon Thyme.—This is another good plant, in every respect like the common Lemon Thyme, quite as hardy, and free-growing. The leaves are of a bright yellow colour round the edges, and the same tinge extends to nearly two-thirds of the surface of the leaf. It is certain to become popular as a dwarf edging plant; and as it retains its variegation throughout the winter, it will be very useful for the winter garden also.—J. Simpson, *Wortley Hall Gardens*.

SOLANUM MACRANTHUM.

Some of my readers may think an alliance with the Potato is no recommendation to the ornamental properties of this plant; but a glance at the illustration of it (which we owe to M. Alphand's "Promenades de Paris") will, I think, cause them to form a different opinion of the cousins of the Potato. The genus Solanum is a very widely distributed one, but the headquarters of the family is certainly in South America. The genus includes a great variety of types, some being mere low-growing annuals, others shrubs, whilst some attain to the dimensions of small trees. Some species are used medicinally, but by far the most useful one to man is S. tuberosum, a plant now well known by everyone as the Potato, which, like the subject of our engraving, originally came from South America.

Amongst the various species of Solanum which grow to the size of shrubs are some with large bold leaves, which afford quite a distinct feature in a group of plants, and have been pressed into the service of the gardener from their suitableness for the summer decoration of gardens. Their bold leaves, in many instances ornamented with stout spines of various colours, make them very attractive, and as it is bold, distinct features that are required in such situations, we hope both gardeners and amateurs will look upon the Solanum family with more favour than is usually accorded them. The species now under consideration, S. macranthum, is a very handsome plant, a native of Brazil. The stem is woolly and prickly; the leaves large, sub-cordate, acuminate, angularly-lobed, and clothed on both sides with a stellate tomentum, which is greyish green above and dull red below; the nerves are red, but the primary ones are furnished with stout spines of a yellowish brown colour. The whole plant forms a charming object for general purposes of decoration, and when seen in good condition it cannot fail to please even the most fastidious. The flowers are also large and conspicuous, but as the foliage is its principal attraction, little need be said here respecting its inflorescence.

I wish to say, in passing, that I think a great mistake is made by many, both gardeners and amateurs, in objecting to

call a garden, formed by the association of tropical plants with the denizens of temperate climes, sub-tropical. Complaints are frequently made against gardeners and amateurs about their management of the large-leaved sub-tropical plants, and which can easily be explained. Most people who use these plants treat them to a somewhat warm house during winter, and then gradually inure them to the open air by a process of hardening-off. This I look upon as a wrong system. I prefer keeping such plants as cool as possible during winter, so as to prevent them making any growth until after they are placed out of doors. By this means the foliage which is made in the open air will be more hardy, and always look superior to that which exists only by sufferance. I am convinced that this treatment will lead the gardener or amateur to success, and I hope my readers will give the results of their efforts in this direction. I do not say that it is possible thus to prevent the plants making some growth before they are put out of doors, nor to allow the amateur to use any kind of plant, but it will materially assist in making this subject more attractive, and the expense less in carrying it ont.

As an illustration of my meaning, I will suppose that I have purchased some three or four dozen plants, such as Palms, Aralias, some of the Solanums, &c., which I use in my flower garden, but when winter comes I have no stove to place them in, and it may be, under the ordinary circumstances, no greenhouse: I must either destroy them or pay some one for taking care of them through the winter. If, however, I knew that the majority, or, perhaps, all of them, would make beautiful objects for the decoration of my hall, my drawing-room, and various other places about my house during winter, and then be in a better condition than my neighbours' plants in spring, because they had not been excited into growth prematurely, would I not use them so? I think it is a great inducement even to those who have no glass structures, to surround themselves with some bold and effective plants, to mix with showy-flowered neighbours in the beds and borders.

Solanum macranthum.

I must conclude these remarks, however, by once more referring to S. macranthum, which may be increased either by seeds or cuttings, and should be grown in light rich soil of loam, peat, leaf mould, and sand in about equal parts. In potting, the drainage should be good, and the water plentiful when the plants are in an active state. When dormant, or directly after pruning, very little water should be given until indications of growth become visible.—Experto Crede.

REVIEW.

The Forest Trees of Britain. By the Rev. C. A. Johns, F.L.S., &c. London: Society for Promoting Christian Knowledge.

Three circumstances are essential to the production of a good book—namely, a good subject, a good writer, and a good publisher. The volume before us benefited by those three circumstances. The forest trees of our country are intimately connected with its history and its welfare. Mr. Johns is a most suitable writer on such a subject—he has a general knowledge of natural history, he is a fluent writer, and his family grouped around him are thoroughly congenial. We should like to raise the curtain and exhibit the wife pen in hand, and the daughter with the pencil illustrating her friend's song, "Wait a little, laddie." Such family surroundings are needful to the man who writes genially on such subjects. It is only on dry mathematics that an old bachelor can write; or a Socrates on abstract philosophy, having a scolding wife.

Then a few words relative to the Society, publishers of this volume. During the year just closed it issued 178,828 Bibles; 77,690 New Testaments; 400,698 Common Prayers, and nearly three millions of other bound books, of which that before us was one. These were not all sold, but many thousands of pounds worth were given away. In addition, the Society granted from its funds £5791 for building churches and schools at home and in the Colonies. The Society's total outlay for those and cognate purposes amounted to more than £25,000. We mention these facts because we know that the Society has been generous to an excess, and is fully entitled to increased support. We therefore commend it earnestly to our readers as deserving their aid.

Let us now recur to the volume before us, and we will select for extract the description of the Birch. We thought that we were thoroughly acquainted with its uses, for the acquaintance commenced painfully in early life, but Mr. Johns has gathered together much that is new to us.

"No tree is more generally or more deservedly admired on the ground of its own intrinsic beauty than the Birch. As the

Oak has no tree to vie with itself in the sterner attributes of majesty, dignity, and strength, so the

'most beautiful
Of forest trees, the Lady of the Woods,'

stands unrivalled in lightness, grace, and elegance. In one respect it even claims precedence over the monarch of the forest, and that one which its slender and delicate form would least lead us to expect: it stands in need of no protection from other trees in any stage of its growth, and loves the bleak mountain-side and other exposed situations, from which the sturdy Oak shrinks with dismay. But the style of beauty in which each of these trees excels is so widely different in kind, that neither of them can properly interfere with the other.

Leaf and flower of the Birch.

"Pliny describes the Birch as a slender tree inhabiting the cold parts of Gaul. The branches, he says, were used for making baskets and the hoops of casks; and the fasces, or bundles of rods which were carried before the Roman magistrates, were made of Birch twigs; the use, therefore, of the weapon which, in modern times, is the terror of idle schoolboys, is of high classical authority. Branches of this tree were formerly used for decking the houses in Rogation week, as Holly is at Christmas. Gerard says the branches 'serve well to the decking-up of houses and banquetting-rooms for places of pleasure, and beautifying the streetes in the Cross, or gang, weeke' (the same as Rogation week), 'and such like.'

"The Birch is a native of the colder regions of Europe and Asia. Throughout the whole of the Russian empire it is more common than any other tree, being found in every wood and grove from the Baltic Sea to the Eastern Ocean, and frequently occupying the forest to the exclusion of almost every other tree. It grows from Mount Etna to Iceland; in the warmer countries being found at a high elevation in the mountains, and varying in character according to the temperature. In Italy, where it grows, though it appears from Pliny's account not to have been noticed by the ancients, it forms little woods at an elevation of 6000 feet; on some of the Highland mountains it is found at the height of 3500 feet. In Greenland it is the only tree; but wherever it grows it diminishes in size according to the decreased temperature to which it is exposed.

The Weeping Birch.

"The peculiar characteristics of the Birch are, as it has been remarked, lightness and elegance, qualities which are owing to the slenderness of the main stem in proportion to its height, the wiriness of the branches, and the thinness and small size of the foliage. It is equally remarkable for the colouring of its bark, which is marked with brown, yellow, and silvery touches, which are very picturesque, contrasting well with the dark green hue of the leaves. The younger twigs have no such variety of colour, being of a uniform purple brown. The leaves are sharp-pointed, stalked, and unevenly serrated. In April and May the flowers appear in the form of drooping catkins, some of which produce stamens only and drop off early. The fertile ones bear very small winged nuts, and fall to pieces when ripe, scattering the numerous seeds. The barren catkins are formed in summer, but do not expand till the fertile catkins appear in the following spring. A kind of resin exudes from the leaves and young twigs, which is highly fragrant, especially after rain or heavy dew. This resin appears to have been collected in Pliny's time; as he speaks of a bitumen which the tree produces. The odour arising from it is very perceptible to a person passing near a tree, and affords another reason why the Birch should be planted near houses.

"A variety of the Birch is often met with in the Highlands which differs from the common species, by having the shoots pendulous. This is a yet more elegant tree than the first described, and is frequently planted in parks and gardens. It possesses another advantage in being of quicker growth and attaining a larger size. There is also a slight difference in the leaves, which are smaller and somewhat downy.

"The Birch is a tree of rapid growth, especially when young; and as it is little affected by exposure, it forms an excellent nurse for other trees. The soil which it prefers is turf over sand, and in such situations it attains maturity in about fifty years; but it seldom exceeds 50 feet in height, with a trunk from 12 to 18 inches in diameter. The bark possesses the singular property of being more durable than the wood which it encircles. Of this the peasants of Sweden and Lapland, where Birch is very abundant, take advantage, and, shaping it like tiles, cover their houses with it. Travellers in Lapland have noticed in the Birch-forests, that when the soil is very scanty, the trees are liable to be blown down; so that, in some places, as many are seen lying on the ground as are left standing. Such as have lain long are found to have entirely lost the substance of the wood, the bark remaining a hollow cylinder without any symptom of decay. In North America this durability of the bark is turned to good account in the structure of canoes. The Canadians select a tree with a large and smooth trunk. In the spring, two circular incisions are made quite through the bark, several feet from each other. Two vertical incisions are then made on opposite sides of the tree; after which a wooden wedge is introduced, by which the bark is easily detached in plates usually 10 or 12 feet long, and 2 feet 9 inches broad. To form the canoe, they are stitched together with the fibrous roots of the White Spruce. The seams are coated with resin from the Balm of Gilead. Great use is made of these canoes by the savages and by the French Canadians in their long journeys into the interior of the country: they are very light, and are easily carried on the shoulders from one lake or river to another. A canoe calculated for four persons weighs from 40 to 50 lbs. Some of them are made to carry fifteen passengers. This species is known as the Paper Birch.

"The thin white bark of the common Birch, which peels off like paper, is highly inflammable, and will burn like a candle. The Birch abounds in a sweet watery sap, which was formerly much valued for its supposed medicinal virtues. The method pursued in collecting it is as follows:—About the beginning of March an oblique cut is made, almost as deep as the pith, under some wide-spreading branch, into which a small stone or chip is inserted, to keep the lips of the wound open. To this orifice a bottle is attached to collect the flowing juice, which is clear, watery, and sweetish, but retains something both of the taste and odour of the tree. Various receipts are given for the pre-

paration of the wine. That recommended by Evelyn can hardly fail to produce an agreeable beverage. He directs that it should be boiled for an hour, with a quart of honey to every gallon of juice, a few cloves, some lemon-peel, and a small proportion of cinnamon and mace. It should then be fermented with yeast, and bottled. This process, according to the same author, does not injure the tree, for he mentions having observed a Birch which was so treated for very many years, and nevertheless grew to an unusual size.

"The wood of the Birch is white shaded with red, and, if grown in a very cold climate, lasts a long while. It is used for packing-cases, turnery, wooden shoes, and the felloes of wheels, but is inferior to other kinds of timber for all these purposes. A piece of Birch wood was once found in Siberia, changed entirely into stone, while the cuticle, or outer coating of the bark, of a satiny whiteness, was exactly in its natural state, perfectly well-preserved. This proves what was before said of the durability of the bark. Thin pieces of the cuticle are sometimes placed between the soles of shoes, and are found to resist wet. The bark is even wrapped round the lower end of posts which are inserted in the ground, to prevent the moisture from penetrating them. The bark of large trees is used by the Laplanders as a kind of cloak, a hole being made in the centre to admit the head. From smaller trees, about the size of a man's leg, they make boots by removing the wood and leaving a seamless tube of bark. In seasons of scarcity the inner bark is sometimes ground with corn and made into bread; but this, we must hope, happens but rarely.

"From the leaves a yellow dye may be prepared. The wood makes excellent charcoal for gunpowder and crayons; and in northern countries, other parts of the tree are applied to various uses, not, indeed, from any particular fitness of the Birch, but from the absence of trees of any other kind. 'The Highlanders of Scotland make everything of it; they build their houses, make their beds, chairs, tables, dishes, and spoons; construct their mills; make their carts, ploughs, harrows, gates, and fences, and even manufacture ropes of it. The branches are employed as fuel in the distillation of whisky; the spray is used for smoking hams and herrings, for which last purpose it is preferred to every other kind of wood. The bark is used for tanning leather, and sometimes, when dried and twisted into a rope, instead of candles. The spray is used for thatching houses: and, dried in summer, with the leaves on, makes a good bed where Heath is scarce.'—(*London.*)

"In Russia an oil is extracted from the Birch, which is used in the preparation of Russian leather. For this purpose, the white bark, taken either from recent trees or from the decayed trees which are found in the woods, is gathered into a heap, and pressed into a pit shaped like a funnel; it is then set on fire, and covered with turf.

"The oil which trickles down the sides drops into a vessel placed to receive it, and is then stowed away in casks. The purest oil swims at the top, and when used for anointing leather not only imparts a fragrant odour, but makes it durable. Owing to the presence of this oil, books bound in Russian leather are not liable to become mouldy; they also prevent mouldiness in books bound in other leather which happen to be near them.

"The Birch is liable to a disease which shows itself by producing on the upper branches large tufts of twigs, which seen at a distance resemble crows' nests. How it originates is unknown, some persons assigning it to the puncture of an insect, others to peculiarity in the soil.

"A district species of Birch, Betula nana, Dwarf Birch, is found in Scotland and in all the northern countries of continental Europe and America. It is a low wiry shrub, rarely exceeding 3 feet in height, with numerous round notched leaves, which are beautifully veined. By the Laplander it is applied to the same purpose as the twigs of the larger kind."

ROSES AND THEIR NOMENCLATURE.

I see that a discussion has arisen as to the correctness of the term Hybrid Perpetual, and the advisability of changing it. It would seem that no one denies that the name is not scientifically exact. Nearly every garden flower is a hybrid, so that part of the designation is not distinctive, while no Rose is perpetual, strictly speaking. But, on the other hand, we have flowers called "everlasting," that will only last a long time, and every day names equally inconsistent are on our tongue. To remedy this would demand a reform of our entire vocabulary, to be rejected in ten or twenty years when our knowledge would be extended beyond what we should look on then as our ignorance of 1872. The French have a very good word for these Roses, but unfortunately we have no equivalent, while as for adopting the word bodily as it stands, it is not expedient, nor is it any argument to the contrary to say we have already adopted several French words into the language. So much the worse for the language, and for the ears of those conversant with French, other than that of "Stratford-atte Bowe," so often tortured by such words as "amachower" (*amateur*), "trussou" (*trousseau*), and similar barbarities. The nearest approach to Remontant as used for Roses, would be, perhaps, "Reflorescent" or "Ever-bloom." "Cut-and-come-again" might suit, were it not rather disrespectful to the queen of flowers. A similar objection applies to a Greek compound "poly" something or other. The French have more than one word to express this; their perpetual Strawberries they call *Fraises des Quatres Saisons*, or of the four seasons; but their perpetual Carnations are *Œillets rémontants*.

I think, then, the best plan is to strive to improve the flowers, and let the names alone; at least, until we reach the goal of perfection, and coming to a stand-still be enabled to make a final reform in everything without fear of further cause for change. My only regret is, that I have none of these Roses, to trouble me with their names or to delight me with their beauty. My garden is very small, it contains Cabbage Roses, giving a supply of blooms for one month in the year. There is no room for both, and fearing lest the Perpetuals should fail I am mindful of the old adage that tells us to keep the dirty water till we have made sure of the clean.—Far West.

STRAWBERRY CULTURE.

The Strawberry is one of the most easily cultivated and desirable of fruits, and yet, though it is so valuable and wholesome that even the invalid may partake of it freely, not half the attention is bestowed on its culture which its merits deserve, nor so much as is often paid to a crop of spring Cabbages. How often do we find old worn-out beds occupy the same ground year after year, producing only a poor crop of miserable fruit, which does not half pay for the ground the plants occupy. This state of matters is in many cases owing to ignorance of the requirements of the plant, and sometimes also it results from people fancying that the beds require to be planted for a year or two before they come into full bearing. I will, therefore, state as concisely as possible the method which I have found succeed best, both for culture in pots and out of doors.

There is one thing of considerable importance, a knowledge of which can only be obtained by experience, and that is to be able to tell which are the best sorts to cultivate in particular soils and situations. Practical experience is always the most useful; I will, therefore, state mine. Some years previous to my taking my present situation the garden had been totally neglected, the Strawberry beds were in a bad plight, and I found two sorts only were grown; one of them proved to be Black Prince, the other a large late variety of little value, which was soon discarded. The kitchen garden ground is very light and stony on a gravel bottom, and has very little holding power. My employer told me that the ground was not adapted for growing Strawberries, and the old gardener held a similar opinion. However, I meant to try, and selected the most suitable piece of ground in the garden for the base of operations. The first effort was to trench the ground 2 feet deep. This afforded me an excellent opportunity for adding plenty of manure, and a quantity of stiff loam which was procured at considerable cost, but in such soil as I had to deal with the loam was an absolute necessity. I planted the ground with Keens' Seedling, Sir Harry, Rivers's Eliza, Duc de Malakoff, and Prolific Hautbois. They succeeded tolerably well, but did not come up to my expectations. Sir Harry was the only variety retained when the bed was destroyed. Keens' Seedling is so generally good that I am again trying it; from the appearance of the leaves the variety I now have is distinct from that I obtained from the nursery. In unsuitable soils like that which I have to deal with, the only way to obtain satisfactory results is by planting frequently. I destroy the beds after the second crop is gathered.

Many persons are not aware that the best crop of Strawberries is obtained the first season after planting. Good strong runners must be selected, layered in small pots about the middle of July, and planted out in well-prepared ground the first week in August. This will allow the plants to be well established, and the crowns to be matured before winter.

With a few exceptions 2 feet from plant to plant is the best distance. Stir the ground frequently between the rows to keep down weeds, but never dig between them as is sometimes done. All runners should be pinched off as fast as they appear, for they injure the plants if allowed to remain. Of course, a sufficient number of those that are formed when the flower-

trusses are thrown up should be retained for plants. When the fruit is set it is a good practice to mulch between the rows with rotted manure. If the weather is dry a good watering is beneficial, and this mulching serves to retain moisture.

The best method of preserving the ripe fruit from damage is an important consideration. I have seen the mowings from the lawn used to place between the rows; this is a bad material—clean straw is the best, and in dry weather it is very efficient. In wet weather it is very tiresome to have the best fruit eaten by slugs; the only way to prevent this is to keep the fruit in a hanging position, which is easily managed by using small branches of Elm, Beech, or Hornbeam, sticking in a few close to the plants and letting the fruit hang over from the clefts of the sprays. I tried some of the galvanised Strawberry protectors last year, but I prefer the branchlets about a foot long.

I may also make a few remarks on pot culture. There are few gardens where this is not carried on to a greater or less extent. The principal object to be studied in pot culture, is to have the crowns well matured, so that the largest possible per-centage of plants may throw up flower-trusses. In very early forcing it is annoying to have 50 per cent. of the plants unfruitful, and such an occurrence is unfortunately by no means uncommon. When the plants are required for forcing very early, 5-inch pots are the best size in which to fruit the plants, and these should be in the fruiting-pots by the first week of August. For later forcing 6-inch pots are the best. The compost required is very simple—turfy loam five parts, and rotted manure one part; and if convenient it should be laid up a few months previous to use. I generally layer the runners in 60-sized pots; these average 2½ inches in diameter, inside measure. This allows a good space round the balls when repotting into 5 and 6-inch pots. The compost should be rammed in quite firmly with a wooden rammer.

With regard to sorts, much has been written about the capabilities of this and that variety, but it is utterly impossible to say which is the best to plant on certain soils without trial. The only way by which anyone can ascertain which is the best variety for his garden is by planting, say, a dozen of the most approved sorts, and selecting those most suitable for the soil and situation. British Queen I now place at the head of the list as the best variety, both for pot culture and planting out in the garden; it is not the heaviest cropper, but the fruit is large, even in size, and surpassingly good in flavour. Of La Constante I do not think so highly as formerly, but it is very distinct, of neat and compact habit, and bears large crops of equal-sized fruit. Lucas is now preferred to it as being rather better in flavour; the fruit is larger and finer in appearance. President, a variety of sterling merit, does equally well in pots and planted out. Premier we grow for its cropping capabilities, and the fine appearance of the fruit; it is only of medium flavour. Frogmore Late Pine is the best late sort I have yet tried, a good cropper, good in flavour, and even-sized. Amongst new varieties Bradley's "The Amateur," is, I believe, the best, but I shall not be able to thoroughly prove it until next year. 1871 was the worst year in my experience for Strawberries out of doors, but this new variety of Mr. Bradley's was the best I had the opportunity of tasting.

Can any of our contributors or readers say anything of the new continental varieties? I have tried some of them; they are tolerably good, but not good enough to displace our own approved sorts. I see that both Mr. Gilbert and Mr. Radclyffe think very highly of Dr. Hogg. It was splendid with me at first, but it has degenerated, and even young plants die off as if diseased; perhaps a new stock would be an effectual remedy. Galande mentioned by Mr. Radclyffe, and Black Bess spoken highly of by Mr. Gilbert, I know nothing at all about. I can quite understand the secret of Mr. Radclyffe's success, when he states that his runners were planted July 7th. Such plants will carry immense crops next season.—J. Douglas.

KING OF THE MARROWS PEA.

In your number of the 25th ult. the Rev. W. F. Radclyffe mentions King of the Marrows Pea as "large and of admirable flavour." I quite agree with that, for it is quite worthy of such comment, and he says he believes it grows 5 or 6 feet in height. Last summer I had two rows 15 yards long. When they were 4 feet in height I planted a row of Celery between each, thinking they would shade it just long enough for the Celery to hold its own; but imagine my chagrin when, instead of coming into crop, up the Peas went, and still up. I put in a pole 10 feet long at each end of the row, and one in the centre, then stretched strings along each side, and when the Peas produced they were 9 feet 6 inches in height! Of course, owing to their having to stand so long the Celery was considerably drawn, and being rather short I had to use a step ladder in gathering, for the haulm did not bear nearer the ground than 4 feet. The Peas, however, were much praised, being large, bright green, and of fine flavour. There was an immense crop. The soil was stiff, but had been trenched and manured in the previous autumn at both spits; but the Peas looked magnificently, and were wonders.—James Lock, *Surrey*.

GLEICHENIA RUPESTRIS.

Fully agreeing with "T. B." as regards the great beauty of this, to my mind the queen of its tribe, I certainly come to a different conclusion as to why so few amateurs exhibit it. I say, and I think without fear of contradiction, that it is simply because of its great rarity we so seldom see it exhibited by either nurserymen or amateurs. In not one catalogue, and I possess all the principal ones, can I find it, though G. speluncæ, flabellata, dichotoma, dicarpa, and semivestita are quoted in many of them. I only know of three specimens—Mr. Mendel's, Mr. Baines's, and my own. I have just been to measure mine. It is 2 feet 7 inches high, and not quite 4 feet in diameter. I grow my plant in the cooler Fern stove, and "T. B." is quite right that too much heat is injurious to all the members of this lovely tribe. My specimen has fairly started its new growth, and I daresay many of your readers will see it exhibited during the coming season.

The great difficulty with Gleichenias is propagating them. Division is dangerous, and often fatal, while fructification is, with me at any rate, unknown. I am aware that seedlings have been raised, for Mr. Bull's traveller informed me only yesterday that Mr. Bull had been successful in raising some upon one occasion.

Let me conclude by making a remark about Adiantum farleyense. I possess four plants of it, one a very fine specimen 4 feet in diameter, yet I have never seen a fertile frond, and Mr. Williams, of Holloway, when calling upon me a few weeks ago, said that his experience was the same. I cannot help thinking that "T. B." is the possessor of one of the three specimens of G. rupestris known to me.—T. M. Shuttleworth, *Golden Hill, Leyland, near Preston*.

DESTROYING PREDATORY INSECTS.

At page 109, "An Old Subscriber" asks your advice for scale upon orchard-house trees, and I feel much surprised you do not recommend my insect-destroying compound, it being such an easy and effectual cure. If gardeners would give their trees two good syringings as a winter dressing they would not be troubled with scale or any other insect.

My first grand experiment with it upon Peach trees was when the fruit were colouring, and at that time my trees were so infested that the fruit were being discoloured with the secretion from the scale, and I was in fear of losing the whole of the crop. However, I ventured to give them a regular good syringing with my compound, and to my great surprise it not only killed the scale, but cleansed the fruit, and next morning the foliage looked as green and healthy as possible. I used it as hot as I could bear my finger in it, and at the rate of 2 ozs. to the gallon; but for a winter dressing I now use 3 ozs. to the gallon. I syringe all the woodwork as well. I now use it as a winter dressing to my Vines in the same way. —T. C. Clarke.

VALE ROYAL,

The Seat of Lord Delamere.

This mansion is in the deep valley along which passes the river Weever, near Northwich in Cheshire—a valley in part so well clothed with trees as, in the olden time, to be designated "The Monks' Wood," and partly so fertile as to be then called "The Holy Vale of Corn." This is recorded in the register of the abbey subsequently founded there; and the same register states that King Edward I. willed that its old titles should be abolished, and that it be named *Vallem Regalem*, "which in English is King's Dale." He so named it when, in 1277, he laid the foundation stone of an abbey in fulfilment of a vow he made if the Virgin preserved him from shipwreck, imminent as he returned from the Holy Land. That abbey, he it told in

exoneration of modern-architect dilatoriness, was not completed until 1330, and at a cost of £32,000, a vast sum in those days when Wheat, if the harvest was abundant, sold for eighty-pence per quarter. It was tenanted by Cistercian or White monks; and although it is not compatible with the subjects of this Journal to detail all their evil doings, yet a brief extract from the abbey's charter may serve to justify the extinction of this abbey. The abbot not only shared with the widow the money of a deceased tenant of the abbey lands, but among other oppressive exactions he claimed as heriots the deceased tenants' pigs, capons, horses, bees, and many other chattels. He also claimed the right of purchasing from them at any time a hen or duck for 2*d.*, and during Lent a duckling for 1½*d.* Piers Plowman with wise prescience saw that such injustice must be abolished, and foretold that the abbeys should receive "the knocke of a kynge." This "knocke" came from Henry VIII., and in the thirtieth year of his reign Vale Royal Abbey was surrendered, and three years subsequently was granted to Thomas Holcroft, one of the king's esquires. He pulled down the entire abbey and erected a mansion on the site, of which an engraving as it appeared in 1616 is in Ormerod's "History of Cheshire," and others of it in 1775 and 1819. Wings were added by Mr. Cholmondley in 1796, and various subsequent alterations have rendered it the mansion represented in our engraving. The cellars of the abbey remain under the mansion, and a subterranean passage, said to extend four miles, but now ruinous, and only traversable less than a fourth that distance. Such traditions, and legends like those of Nixon the Cheshire pro-

Vale Royal.

phet's foretellings relative to the Cholmondleys, usually attach to monastic localities.

The estate passed to Dame Mary Cholmondley, widow of Sir Hugh, in 1616; and in the following year, on his return from Scotland, James I. stayed four nights at Vale Royal with "the bold Ladie of Cheshire," and hunted her stags with his own hounds. Lady Cholmondley's fourth son was the ancestor of the present Lord Delamere, whose father was raised to the peerage by that title at the coronation of George IV.

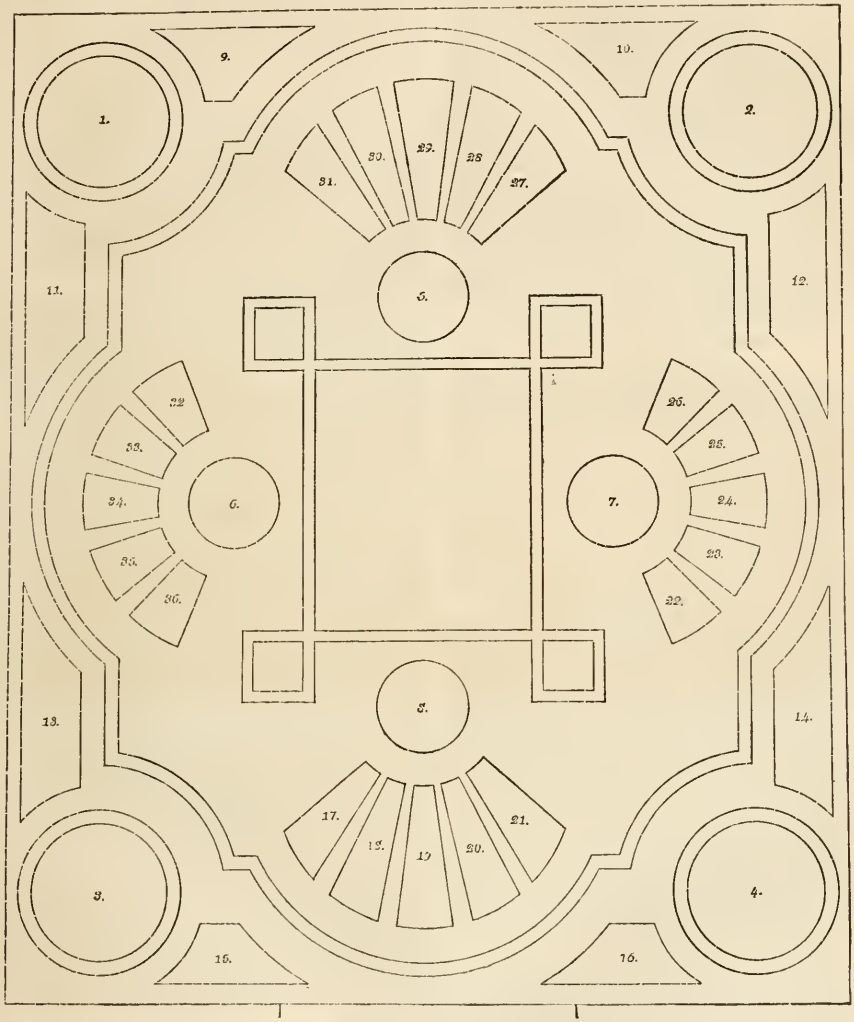
This fine estate is about four miles from the salt-manufacturing town of Northwich, near the centre of the county of Cheshire, and but a short distance from the eastern edge of Delamere forest, a part of which extends so as to join Vale Royal New Park.

The drive from Northwich is exceedingly pretty after leaving the highway, being for a considerable distance by the side of the river Weever, a navigable stream, which traverses a valley of the richest grass land. It has a winding course, first approaching one side of the valley and then the other, whilst in some places it seems to be hemmed-in. The carriage road skirts a wood which clothes the banks of one side of the valley, a wood of considerable beauty, both from the presence of overhanging trees and of masses of Rhododendrons on each side of the drive. The mansion, of which an engraving is annexed, is partly hidden from the approach by some noble trees, and it is not until we come quite close that the beauties of its architecture and position become apparent. At first sight it seems to be of small height, but this impression is no doubt due to the great expanse of ground over which it extends. It is built of the red sandstone of the district, and with its attached grounds occupies a somewhat elevated position.

The principal carriage entrance is to the north, and the garden and dressed grounds are to the south, east, and partly to the west, on which side the offices join the main building. To the south is a beautiful flower garden, including a series of beds forming a pleasing geometrical design, or rather two such, for a broad central walk divided the garden in two. The beds were filled to overflowing with the choice bedding plants of the day, and bounded on the west end by a fine ribbon border. This large flower garden is not the only one, for beyond a broad piece of ornamental water are more dressed ground and flower-beds, but more irregular, and intermixed with shrubs, specimen Conifers, and the like, with still more shrubs further in the south. Here is the kitchen garden effectively concealed by the shrubs, the mixed flower-beds by the edge of the water giving an ornamental appearance to the front. Entering the kitchen garden by a concealed path we soon reached the vinery, where were excellent Grapes and Peaches. The other contents of the forcing houses were equally good, as were the crops of vegetables of all kinds outside, to which the fine, deep, mellow soil is evidently well suited.

Where the dressed grounds approach the wood is a deep dell, the perpendicular descent into which cannot be less than from 80 to 100 feet, or more. This natural ravine contained some fine old Oaks, and the ground is thickly covered in most

places with Rhododendrons, amongst which there wound various walks, with seats and summer-houses at suitable points, and in the bottom was a level space, on which an artistic fountain and basin were placed. I am not sure but a dripping well or something of that kind, and for which the stream of water that runs down the middle could easily be made to do duty, would not be more appropriate. It was, however, a most lovely spot even in August, and must be still more so in May



FLOWER GARDEN AT VALE ROYAL.[1]

1, 2, 3, 4, Geranium Cybister, edged with Centaurea.
5, 6, 7, 8, Calceolaria Yellow Gem, edged with Perilla.
9, 10, 15, 16, Geranium Crystal Palace Gem, edged with Iresine Lindeni.
11, 12, 13, 14, Geranium Christine, edged with Iresine Lindeni.
17, 21, Geranium Beaton's Silver Nosegay.
18, 20, Purple King Verbena.
19, Robert Fish Geranium. All the other fan beds are planted the same as 17, 18, 19, 20.

In the centre of each half is the monogram—two D's in Box, within an oval of red brick.

The centre bed, not numbered in the plan, is about 2 feet wide, and planted with Geranium Flower of Spring one row, edged with blue Lobelia.

when the Rhododendrons are in flower. One thing especially attracted my attention, and that was a monument which the children of one of the Lady Delameres had erected to her honour towards the end of last century. The inscription upon it records the esteem in which she was held alike by rich and by poor, and its quiet repose under the shade of fine old trees gives a remarkable charm to the landscape.

Pursuing another route through the park, we come to a tract

of land resembling some of the wilds of Scotland, only of more limited extent. The rich grass herbage changes by degrees to a mixture of turf and Fern, and by-and-by the Fern usurps the whole space; while the Oak trees diminish in size, and are mixed with Birches and now and then Hollies. Many naked spots appear, but there is still beauty in the waving of the Fern in the sun, the branching tops of the Oaks and other trees, and the water in the distance. I should think there are few parks exhibiting such diversity as that of Vale Royal, though some have bolder features. The New Park, in which we now are, consists of gentle rising ground, and through it passes a broad carriage road. The poor shallow soil appears to be more of the character of yellow hungry gravel than a black peat, supporting the Fern without the Heath, but in the distance I could see large breadths of the latter.

Emerging from the park at a place where its wild features become softened a little, I found myself once more on the highway leading from Northwich to Chester, and I noticed that scarce a building in the High Street but had sunk either one way or the other, and had not cracks in its walls; the window-sills and door-heads were also several inches out of the level. I was told this was owing to the salt having been removed from underneath them. I believe the salt now made there is obtained from salt springs some distance off, the brine being conveyed in pipes to the works.—J. Robson.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Everything in the kitchen garden is now stirring. A proper rotation of crops having been secured, the next best advice is to watch the fluctuations of the weather, and to do all planting and sowing whilst the ground is in a mellow state. Prepare soil for new plantations of *Asparagus* where required. The first requisites are good fibrous loam and dung; when the soil in the garden is what is technically termed old, add a third of the whole of maiden loam, and good rotten dung to the depth of 6 inches over the surface. Trench the ground at least 3 feet deep, and drain it if necessary, then add as much more manure, and dig it in as deeply as is commonly done for general crops. Mark off beds 4 feet wide and 2 feet alleys; then mark the rows on the bed, one in the centre and one on each side, at 1 foot from it. Lay a ridge of equal parts of maiden loam, leaf mould, and sand in the line each row is to occupy, and on those ridges place the plants. They may be either one or two years old, but not more than two years, and they ought to be taken up with great care, so as not to break the point of a single root. When placed on the ridges, with an equal portion of roots on each side, cover the latter to the depth of 2 inches with pure sand when it can be procured; this will induce the plants to throw out a host of young roots, which, passing through the sand, seize with avidity on the more nutritious materials prepared for them. Above the sand put on 4 inches of loam over the crowns, and should the season prove dry, mulch between the rows with Spinach which has run to seed, or some similar covering, and give occasional waterings of liquid manure. If early spring-sown *Cauliflowers* and *Lettuces* are forward enough let them be pricked out. Earth-up *Cabbage* plants. Dig and manure the quarter intended for *Onions*. Plant *Potatoes* on a warm border. See to the due preparation of ground for crops in general, but do not work it when it is wet; better be a fortnight too late with any given crop. Where kitchen gardens are composed of light sandy soil, it is better dug and trenched several weeks before it is wanted for some crops. Broad Beans, for instance, like a firm hold of the soil.

FRUIT GARDEN.

Every care that fruit trees require in this season of inactivity, if not already bestowed, should at once be afforded. It is a good plan to place a piece of turf over the roots of trees recently planted. Decide on the system of training; the height of the wall and the space horizontally should be early considerations. Prune Raspberries; any Gooseberries and Currants not previously pruned should be forthwith attended to. Gooseberry and Currant trees occupy much less space in a garden if trained on stakes, and afford as much fruit as when in the bush form.

FLOWER GARDEN.

Complete all operations retarded by the weather, and proceed with pruning. Turf may be cut and laid, and wood ashes spread on lawns when the grass is injured by moss. American plants may be removed; it is often dangerous to remove Rhododendrons in the winter, as their delicate fibrous roots are liable to be injured by severe weather. Where the natural soil is not favourable for the growth of Rhododendrons, soil suitable for them may be gradually formed by sweeping the fallen leaves over the roots and covering them with sand every season. Attend well to thorough cleanliness; hoe through or otherwise dress all margins or beds where there are Crocuses, Snowdrops, and other spring flowers. Plant out Hollyhocks, which are well deserving of general cultivation. Their bold and pointed forms stand out in fine relief in masses of flat-headed shrubs. Owing to the absence of frost and the late singularly mild weather, collections of Tulips and other bulbs appear to be but little troubled with canker. When this occurs, and the plants are fairly above ground, cut away the parts with a sharp penknife. Shelter the beds from cutting winds, which are more detrimental than slight frosts. As seedling Polyanthuses come into bloom remove all that are inferior in shape, lacing, or colour. Amateurs have hardly been able to do wrong this season with Carnations and Picotees, and Stocks are looking well throughout the country. Continue the directions previously given, and keep the plants free from green fly; plant out seedlings in beds for blooming, retaining all the soil possible.

GREENHOUSE AND CONSERVATORY.

Among other important matters which belong to this early season, attending to raising certain plants from seeds is not the least important. There are many seeds of exotic herbaceous plants that should be encouraged to germinate early, that the plants may receive the full benefit of our summer, and attain that degree of maturity which enables them better to withstand the gloom and severity of our winters. I would recommend the sowing of exotic and other seeds, generally, during the present and following month. As hybridisation is now better understood and more generally practised than formerly, doubtless additional interest will be discovered in, and attention bestowed on, the propagation of plants by seeds. It is of importance to the anxious grower to bloom his plants the first season, and with many subjects it is only by sowing early that he is enabled to attain this result. Pelargoniums should be sown immediately, and kept growing from the moment they vegetate, to ensure a blossom the first year. As most seeds germinate under similar circumstances, a pit might be appropriated exclusively to the purpose. Beyond regulating the amount of heat, and supplying the seed pans with moisture, no extraordinary care is required. Rich soils are not to be recommended for sowing seeds. The character of the plants should determine in a measure the selection of soil. The admission of air on all favourable opportunities will conduce to the health, and keep the various flowering plants in unimpaired beauty for some weeks. Hyacinths, Lilacs, Kalmias, Azaleas, and Rhodoras introduced will lend beauty and fragrance to the various groups. The rich yellow flowers of Cytisus racemosus will add in no slight degree to the general effect. Kennedya Marryattæ is a charming greenhouse plant, and blossoming at this season it will be doubly valuable. For mixed greenhouses it is somewhat difficult to give precise directions. Plants of all climates occasionally obtain a place here, and no special treatment in regard to temperature can long be indulged in with impunity. As a principle, therefore, I would advise a rather free increase of heat on sunny days early in the afternoon for a few hours, sinking the temperature at night to the old point, or nearly so. In this structure there will frequently be found Ericas, Pelargoniums, New Holland plants, bulbs, &c. A division of these plants should therefore be made; let the Pelargoniums and other softwooded plants occupy the warmer end, and the Ericas, &c., the other, with a free circulation of air. A little Cineraria and Chinese Primrose seed may now be sown; this, with another sowing in April, will furnish a supply for the coming autumn and winter. Attend to ornamental trellis plants, which should be kept neat and orderly.

STOVE.

Exhausted winter-flowering plants in stoves may be cut back a little and left to break afresh, when they may be disrooted and placed in smaller pots; if all go well they will make fine specimens for next winter. Look over the Orchids, and see that the fastenings of those on blocks and in baskets are secure; renew the wires where necessary. Give a little fresh material to those not to be shifted, but beware of burying the buds on the eye of their pushing. Apply baits for snails and cockroaches, and attend closely to the extirpation of scale.

PITS.

Look out a quantity of the best and strongest plants of herbaceous Calceolarias; give them a good shift in a mixture of rough fibrous loam and coarse sharp sand. Place them in a genial bottom heat in frames or pits. A batch of Amaryllis bulbs should now be shaken out and repotted in half-decayed turfy loam, mixed with a small portion of saud. Give air freely to plants in store pots, such as Verbenas and Scarlet Geraniums, and carefully remove all decaying leaves.—W. KEANE.

DOINGS OF THE LAST WEEK.

KITCHEN GARDEN.

THE late fine weather has allowed us to get on with digging and trenching. Cauliflowers are now over, but we are still obliged to protect Snow's and other early Broccoli from the frost. Some Potatoes which had been started in boxes we transplanted into slightly warmed soil, where they seldom fail to do well.

There are several ways of growing early Potatoes—one, by placing the tubers in 3-inch pots, and when they are filled with roots, turning the plants out; another, by growing them right on in 8 or 12-inch pots, and earthing them up by degrees, or starting them as in the former case, and then transplanting into 8 or 12-inch pots. Another, and the best plan of all, is to grow them in 6-inch pots in a mild hotbed of about 50°, covered with a frame, and to earth-up as the plants increase in size. By this means, Potatoes can be obtained three weeks sooner than when treated in the usual way.

We have sown Radishes and Carrots in mild hotbeds somewhat more thickly than is customary, and we shall thin them out less than others do until we pull them for use. A bed of Early Horn or Early Dutch Carrots, if left to grow thickly and then thinned-out as soon as the roots are fit to be used, give the best returns we know of.

Sea-kale will yield its finest heads in the second year after sowing. It can be reproduced by means of pieces of the roots from the old plants, which should be planted in rows with their tops level with the surface of the soil, and covered with ashes and a little salt. These roots may be taken up and forced in the following autumn, and will do very well, but if allowed to remain a year longer before being disturbed they will in that case make most superb plants. I have found that this mode is more satisfactory than using the old crowns, and the plants from it are more forward than the most carefully tended seedlings.

We grow every year less particular about the materials we use for our Mushroom beds. We have small shallow beds so regulated that the spawned bed coming into bearing is aided by the heat arising from that which is being prepared. We shall, however, lay down no strict rules as to the mode of proceeding, as they can be altered so much according to circumstances. Rather young Cucumbers in a pit with but little light in winter, allowed to bear heavily from the middle of November to the end of January, will become very inferior after this time, and will not, even with coaxing, do so well as young plants. If we want a regular winter or spring supply we keep the plants moderately strong through December, but do not let the fruit swell until the New Year is passed.

ORNAMENTAL DEPARTMENT.

The weather is splendid for planting and transplanting, provided, in the latter case, that the ground is not soaked. The best mode, to our way of thinking, of securing newly-planted trees is by means of three fir poles driven in 6 feet from the base of the tree triangularly, and brought together by a circular band of straw ropes at 10 feet from the ground. For preventing evaporation from the bark of trees, and also for keeping off the attacks of cattle, straw or hay ropes twisted round the trunks, and then tarred, may be used.—R. F.

TRADE CATALOGUES RECEIVED.

H. Cannell, Station Road, Woolwich, S.E.—*Illustrated Floral Guide for* 1872.

G. White, 3, Moss Street, Paisley.—*Select List of Garden, Flower, and Agricultural Seeds.*

Ellwanger & Barry, Mount Hope Nurseries, Rochester, New York.—*Descriptive Catalogue of Fruits.—Descriptive Catalogue of Ornamental Trees, Shrubs, Roses, Flowering Plants, &c.*

Teutschel & Co., Colchester.—*List of Japanese Lilies, Maples, Seeds, &c.*

TO CORRESPONDENTS.

N.B.—Many questions must remain unanswered until next week.

BOOKS (*C. J. W.*).—"The Gallery of Nature," by the Rev. T. Milner, will suit you. It is a very full and beautiful "pictorial and descriptive tour through creation." Its price is about 20*s.*

POTATOES UNFIT FOR TABLE (*B. T.*)—The tubers are small and hard, owing to the undrained clayey subsoil. Drain it, and if the surface soil is also clayey, pare and burn 6 inches deep of it, and incorporate the ashes with the remaining surface soil. Grow Ashleaved Kidneys and Lapstone Kidneys.

VINES FAILING (*B. W.*).—Your case is not an uncommon one, as there are many such failures. You are now, however, on a fair way to success. We should not start the Vines until March, and then give no more than a gentle fire heat in cold periods, so as to keep the temperature from falling below 50 at night; in fact, allow the Vines to start naturally, and apply heat at a later period to insure the thorough ripening of the wood.

RHODODENDRONS PRUNING (*S. E. M. J. W.*).—You may cut them down to about 18 inches from the ground, when they will shoot again freely, though usually they do not do much during the first year. Cut back about the second week in April, and in showery weather if possible.

VITALITY OF SEEDS (*William Jones*).—All the kinds of seeds named will keep good until the second or even third year, and many much longer, but we would not sow any of them after the second year, as their germinating power is very weak, and they do not afford nearly such good plants as fresh seeds, even if they grow.

CUPRESSUS LAWSONIANA SEEDS SOWING (*T. Ashton*).—In March sow them amongst light sandy soil in pans, and place them in a cold frame. Keep them close until they come up, and then admit air freely and expose them fully. In autumn prick them off into store pots, and winter them in a cold frame or house, admitting abundance of air. In March they may be put out in rows 18 inches apart, at a distance of 1 foot from one another. In the course of three years they will be fine plants, and may be planted out permanently. The less "coddling" they have the better.

SOIL FOR POTTED PALMS (*C. B.*).—Use a compost consisting of loam two parts, peat one part, well-decomposed manure one part; and a sufficient quantity of sharp sand must be added to make the whole feel gritty when taken in the hand. For seedlings or very young plants, however, we have always found them grow more rapidly if the quantities of loam and peat are reversed; thus, instead of two parts loam, put two parts peat and one only of loam.

AMARYLLIS BULBS PLANTING (*Amaryllis*).—You need be under no apprehension respecting the covering of your bulbs of Amaryllis; there is no more fear of their rotting from that cause than there is with border Hyacinths, Liliums, Tulips, and many other bulbous plants which no one thinks of growing above the soil.

TROPŒOLUMS LATE PLANTED (*M. S. B.*).—We think that the roots of those that were not planted or potted until January will not flower this year, though they may do so very late. Their chance of blooming would have been better had the long white shoots not been cut off. We should keep them in a house with a night temperature of 45° to 50°. It is necessary that they should make good growth if they are to do well another season. They should be potted at the close of August or early in September.

PAINTING STOVE AND GREENHOUSE (*Idem*).—As the houses are cleared of the plants there is nothing to prevent your having them thoroughly cleaned and painted. Do not bring the plants in again until the paint is dried, which can be facilitated by giving air freely, and keeping up a good heat. There is no need to use anything to take away the smell of the paint, but air should be admitted rather more freely for a few days after the plants are put back again, to keep them from injury and to harden the paint. Thoroughly clean the woodwork with soap and water before painting; also clean the glass with pure water, taking care to keep the soapy water from it.

POTATOES SPROUTED (*Ignoramus*).—Remove the Early Rose with shoots 3 inches long, and place them thinly in a warm position (50°), so that they may sprout again freely. It is well, however, not to remove the first shoots of early kinds, as some are very deficient of eyes, and not unfrequently put out a second time very weakly shoots or none at all. Ours have put forth shoots about half an inch long, and are on lath shelves in single layers, receiving air daily, and protected from frost. With the present and late mild weather it is difficult to keep the early sorts from sprouting too much.

PLANTING QUICKS (*A Subscriber*).—We consider one row of Quicks preferable to two, for the simple reason that it is much more quickly and cheaply cleaned, which is the grand secret of getting a hedge to grow. If your ground is poor add manure liberally, and dig deeply. Plant the Quicks 4 to 4½ inches apart, and when from 2 to 2½ feet high. Holly and Thorn make a good semi-evergreen hedge, but for rapid growth Thorn is preferable. The other is the neater hedge. Now is a good time to plant Hollies 1 to 2 feet high that have been recently transplanted. Hollies require to be lifted with good roots, and to secure these frequent transplanting is necessary. If you have Holly and Thorn, five Thorns and one Holly per yard will be needed.

CHRYSANTHEMUMS NOT FLOWERING (*Smith*).—The cause is probably stopping the plants too late, and the buds consequently not having formed until November or later. We have some similarly affected. It is owing to the cold and wet of last season, for the year before, by the same means, we had in January and February fine blooms from plants stopped early in August. We presume yours were treated for a late bloom, which at the best is hazardous, but well worth endeavouring to secure. The weather may be more favourable this year.

CARROTS AND PARSNIPS FOR EXHIBITION (*A Subscriber*).—To make holes at every 9 inches in the rows and fill them with sand is good, but though we should make them 16 inches deep if the soil were stiff, we would not fill them with sand alone, but with fine sandy soil, then sow three or four seeds over each, and single out to one plant in each hole. If the ground is well pulverised to the depth of 18 inches or 2 feet, light, sandy, and rich, the holes are unnecessary.

ONIONS FOR EXHIBITION (*Idem*).—New Giant Rocca, Dauvers' Yellow, Naseby Mammoth, and Bedfordshire Champion. Of Tripolis, Giant White, Large Italian Red, and Red Mammoth.

TWELVE HARDY GRASSES (*Idem*).—Agrostis nebulosa, hardy annual; Carex leporina, hardy perennial; Elensine distans, annual; Hordeum jubatum, annual; Stipa elegantissima, perennial; Pennisetum setosum, annual; Pas-

palum elegans; Gnaphalium argenteum, perennial; Briza geniculata, annual; Anthoxanthum gracile, annual; Piptatherum Thomasi, annual, and Hordeum jubatum, annual. Sow in pans at the beginning of April, place in a cold frame or in gentle heat, and when up admit air freely. When the seedlings are fit to handle plant out in good soil in an open situation. The perennials should be potted off singly, and grown on in a frame, planting out the first two about a foot apart, and the others will do at that distance the first year, and the second year should be a yard apart. Remove every alternate plant of the two perennials first named. Give Equid manure in hot dry weather.

MANURING YEW HEDGES (*Surrey*).—Manuring every year is not necessary; but as you wish for speedy growth we should top-dress with manure and leave it on the surface, as it cannot well be dug in without causing more or less injury to the roots. Old manure mixed with leaf soil and turf parings would be a good top-dressing for the Yews, Retinospores, and Chinese Junipers, but we would not dig it in; we would merely loosen the surface and put on the top-dressing an inch or two thick. By cutting the tops, and not the sides of the Yews, in April, you will cause them to break lower down.

FLOWER-BED PLANTING (*Idem*).—For the star beds you may have Golden Pyrethrum, Alternanthera magnifica, with Antennaria tomentosa for edging. Let the circle be of the first, with a plant of Centaurea in the middle; fill up the points with the Alternanthera, and edge with the Antennaria. Another bed you can have edged with Arabis alpina variegata aurea, filling the points of the star with Ajuga reptans rubra, a circle of Centaurea ragusina compacta, and a small plant of Abutilon Thompsoni in the centre. Another bed you may have edged with Oxalis tropæoloides, the points of the star filled with Santolina incana, a circle of Iresine Lindeni, and in the centre a plant of Coprosma Baueriana variegata. The other bed may be edged with Sempervivum californicum, the points filled with Golden Pyrethrum, a circle of Echeveria metallica, with Dactylis glomerata elegantissima for the centre plant.

BASIN FOR WATER LILIES (*Idem*).—It should have at the bottom about a foot deep of mud formed of any good rich loam, and over that water to the depth of 18 inches or 2 feet. They should be planted in April, and flower in July and August. The Yellow Water Lily (Nuphar lutea), is the first to bloom, and Nymphæa alba or the White Water Lily last. They may be had of the principal nurserymen advertising in our columns. We cannot depart from our rule not to recommend dealers.

JASMINUM FRUTICANS—SOWING ORANGE PIPS (*Alcar*).—Small trees can be grown from pips; sow them now, and place the pot in a hothouse. The soil should be sandy loam with a little leaf mould added. We do not think your Jasminum fruticans will flower in the ensuing summer. It is a dwarf, hardy, deciduous species from the south of Europe. You may plant out at once.

BONES FOR VINE BORDER (*M.*).—Your arrangement is correct, but you should place at least 9 inches of broken bricks or some similar material over the bottom before filling in the compost. The soil would then be 2 feet 3 inches deep, and the border will contain rather more than 12 yards of the compost. Four hundredweight of what are called inch bones will be sufficient. We cannot recommend dealers.

WIRE FOR HYACINTHS (*Joseph Smith*).—You will find wire supports for Hyacinths in glasses at any respectable seedsman's. We see them daily in the seed shops of London.

GEORGE'S CALORIGEN (*H. H.*).—We have had no experience of George's calorigen, and are sorry we cannot give you any further information about it, except what appears in the advertisements.

CORDON TREES (*Amateur*).—1st, No harm will come to cordon trees arising out of the freshness of the wall, if planted against a wall just built. 2nd, The cordons may be inclined either to the right or the left; they are generally bent to the right. Plant them 16 to 18 inches apart, shorten them about one-third of their length, and nail them to the wall the first year at an angle of 60°. When you have the lower part well furnished with spurs, which will be at the end of the second autumn after planting, fix the inclination permanently at 45°.

SIX HARDY ANNUALS FOR CLUMPS (*F. J.*).—Alyssum maritimum, white; Leptosiphon densiflorus, lilac; Linum grandiflorum coccineum, crimson; Nasturtium King of Tom Thumbs, scarlet; Nasturtium King of Tom Thumbs, golden yellow; and Saponaria calabrica, pink. They are of compact growth, under a foot or about a foot in height, and bloom a long time. Lobelias and Ageratum Imperial Dwarf come true from seed, and bloom as freely as from cuttings, but the plants are somewhat stronger, and are later in flowering. On the north border we do not know of anything that will do so well as Calceolarias. We would have Perilla at the back, then yellow Calceolarias, and an edging of Lobelia. Between the newly-planted Apple and Pear trees you may have a row of dwarf Peas, as Little Gem, and small-topped Potatoes, and even Cauliflowers; but we should only have one row between every two rows of Apple or Pear trees.

DISTINGUISHING POTATOES BY THE SPROUTS—SELECT ROSES—VARIOUS (*Fair West*).—You ask us "Why Sandringham Kidney Potato was last year in catalogues as a novelty, and is not mentioned this year?" It is named in the catalogues as a novelty, and is not mentioned this year? The Potato that has dark bluish-green sprouts we should first we looked into. The Potato that has dark bluish-green sprouts we should say is Royal Ashleaf, and the other with very light sprouts, the colour of forced Asparagus, we should consider Sandringham, but we cannot be certain. As you have grown both before, you will be able to distinguish them by the growth. We do not know how you will be able to insure the dryness of the wall without repairing the thatched roof, and that will enable you to plant your tree at the place you wish. We do not understand the purport of your third question. The site of the garden is good, but the elevation will not counterbalance the moisture of the climate. You may bud the summer Roses with Perpetuals, or replace them with the latter. These will do wherever the others will. You could probably obtain buds at the proper time from some friend. A dozen Roses are—Baroness Rothschild, Alfred Colomb, Dr. Andry, Edward Morren, John Hopper, Charles Lefebvre, La France, Senateur Vaisse, Perfection de Lyon, Thorin, Mdlle. Marie Rady, Pierre Notting, and Xavier Olibn, all Hybrid Perpetuals; Gloire de Dijon, Tea-scented; and for the wall, Alice Grey, Dundee Rambler, and Queen. The wall is not good enough for Noisettes or Teas. The Fern is Polypodium vulgare. Bellegarde Onion requires to be sown like any other—namely, as soon after the present time as the ground is in good working order. Angelica de Niort sow in drills a foot apart, and half an inch deep, and thin out the plants to 2 feet 6 inches from each other when 6 inches high, or you may put in a few seeds in a patch at the distances named, and thin out the seedlings in each patch to one. It requires moist soil. Sow Melilotus cærulea in common soil in March. Sow Gourds in a hotbed early in April, and plant out in May after hardening-off. Grow the Melon in frames. Sow the varieties of Delphinium elatum in the open ground in April, and plant out 3 feet apart. Sow tree Carnations in pans in gentle heat, harden off the young plants, and prick them out a foot apart. Take them up with balls in autumn, and winter them in a frame or house. Plant Chinese Yams 18 inches apart, in rows 4 feet asunder, taking out soil between the trenches so as to cover them a foot deep.

HEATING A SMALL GREENHOUSE (*H. N. O.*).—We think the stove you refer to would be perfectly safe, especially if a quarter-of-an-inch iron pipe led from the burner into the open air. Then the water-can or cistern would give off moisture uncontaminated by the effects of the combustion of the oil. For common purposes this would not be necessary. For such a place we ourselves would be quite satisfied with a small iron stove, and a pan of water over it. Certainly a lamp may be more easily managed. The hydronettes, or hydropults, merely want to be placed in a bucket of water; they have all the force in themselves.

ECONOMICAL LEAN-TO GREENHOUSE—GAS-HEATING (*Tenet*).—The cheapest way to construct a small house is to have air in front and at top, and the roof fixed, without sashes, having the sash-bars from 15 to 18 inches apart. For such a small house 20 feet by 8 feet, we would not trouble with ventilators at all if we could have a moveable ventilator at each end, say as much as 2 feet square, under the apex. In very hot weather in summer the door could stand open, and these end ventilators could stand open night and day. For gas-heating refer to No. 341, where full details are given. No mode of heating is so dangerous unless all the fumes are carried off.

GREENHOUSE RAFTERS (*R. Brace*).—As we cannot find the answer to your former question we can give but imperfect advice with respect to the distance of the rafters, the weight of the glass, and the size of the panes. We may add, that rafter sash-bars from 15 to 18 inches apart will support glass from 26 to 24-oz. weight, that a good weight is 21-oz., and supposing the rafters to be 18 inches apart, a good size for the squares will be 18 by 12 inches.

MUSHROOM CULTURE (*T. Porter*).—We have grown Mushrooms in large earthenware pots and moveable wooden boxes 18 inches square, bringing them in in rotation, and we were well supplied. For a regular bed one 3 feet square is too small, and this, as evil in itself, is aggravated by having hot-water pipes passing through these small beds. We never found pipes or flues passing through such beds of any advantage. The boiler at the other end of the shed-house will give heat enough. We have had beds a mass of whiteness in sheds at the back of greenhouses, and at the back of forcing houses, but we should like them to be at least four times the size of yours, and we would keep the temperature uniform with a little rough-hay covering, and keep the atmosphere moist by sprinkling the floor, walks, and walls.

MAKING A HOTBED OF LEAVES (*H. A. L.*).—The leaves need no preparation beyond wetting them if they are dry. We prefer mixing them with their own bulk of stable litter that has been thrown in a heap, turned over once or twice, and watered to bring it to a good heat. Mix this litter with the leaves on making up the bed, putting the littery parts of the manure at the sides, so as to keep the bed together. A bed 4 feet high in front, 5 feet high at back, 18 inches wider than the frame all round, and well beaten down with the fork 18 inches wider than the frame all round, and well beaten down with the fork in making it up, will be a good and durable hotbed, which, with linings, will be suitable for cuttings or seeds, and Cucumbers or Melons. The heat will continue for six weeks; indeed, we had a bed of leaves and litter made at the end of November, and it has still a good heat; it is, of course, well lined with hot dung.

CAMELLIAS AS HARDY SHRUBS (*Subscriber*).—These may in warm sheltered nooks in the far south or south-western counties succeed as hardy shrubs, but we fear they would not thrive as such in Surrey, though we have no fear of their doing well against a wall with a south-west or west aspect. At Southampton we know a wall covered with Camellias, which bloom well and have no protection, and in Yorkshire we have seen a plant of Alba plena with three hundred expanded flowers in January, in a house without any artificial heat.

BEGONIAS DAMPING (*W. H.*).—At this season they require very little water. Keep them no more than just moist; potting in November would tend to cause them to go off. Let them have a temperature of 50°, and they will soon commence to grow freely. The leaf you sent is of Lucinda grandiflora. As the flowers damp-off give more air and a temperature of 45° to 50°. Do not water at the roots until the soil becomes dry, then give a good supply.

DOUBLE-FLOWERED GERANIUM (*Henri*).—The plants which bloomed late should be cut-in now, shortening each shoot to within a few eyes of its base. When the plants have made fresh shoots about an inch long, turn them out of the pots, shake off the old soil, and place them in 6-inch pots; shift into 8-inch pots when they have filled the others with roots, and again into 10-inch pots if you wish to have large plants. Those which were struck last May, and are in 5-inch pots, may be cut back if straggling; if not, they should be stopped, shaken out, and repotted in the same size, shifting them into larger pots as required. The plants from cuttings struck last autumn will only need to be cut back to three or four eyes, shifting afresh into larger pots after they have started. The parts cut off will strike freely in gentle heat. The turf you laid up last autumn will now be in good order for potting; chop it up well. It would be the better of the addition of sand for plants, and for cuttings sand is essential.

HARDY ANNUALS FOR EARLY FLOWERING (*Idem*).—Bartonia aurea, Centranthus macrosiphon, Chrysanthemum Burridgeanum, Clarkia pulchella marginata flore-pleno, Branching Larkspur, Leptosiphon densiflorus, Linum grandiflorum coccineum, Lupinus subcarnosus, Nasturtium Tom Thumb variegated, Saponaria calabrica, Silene pendula ruberrima, and Whitlavia grandiflora. Sow early in April in rich light soil in an open border, in patches a foot or more across, covering the seeds with very fine soil. Water if the weather be dry, and thin out the seedlings to 2 to 3 inches apart when they are about an inch high.

IMPROVING GARDEN SOIL (*S. R.*).—We would trench the ground that has not been dug for a number of years and pulverise it as much as possible. For all root crops we would place the manure between the layers of soil in the trenching—that is, we would place the top soil at the bottom of the trench, and manure, mixing the manure with the bottom spit by means of a fork, then turn on the bottom spit, well breaking the clods, and before sowing fork well so as to have the surface in good tilth. For Peas, Cauliflowers, and Potatoes we should manure on the surface and fork-in the manure. We think, without manure, your prospect of good crops will be bad. The part with about 9 inches of loam over a bed of ashes or cinder rubbish many feet deep would be much improved by putting a layer of vegetable refuse on the cinders and making the soil at least 15 inches deep. Make the soil as nearly 2 feet deep as you can, manure liberally, and there is not any kind of vegetable crop that would not do well in this part. It will suit Potatoes very well, the good drainage tending to cause early maturity.

Growing late Melons in Frames (*Amateur*).—By sowing the seeds about the middle of March, and shifting the plants into larger pots as required, you may fruit them early in August by planting them in a frame in June. The plants will have set fruit earlier than the planting-out time, and it is just as well to plunge the pots in the bed, so that the roots may come over the top, or they may be planted out. We would not sow until the beginning of May, and would grow the plants in pots, so as to have them strong for planting-out when the frame is ready, and with linings you have every prospect of a crop of late Melons in September.

White Bedding Pansy (*Idem*).—The best white Pansy for early summer flowering is Cliveden White, and for summer late-struck cuttings Viola cornuta alba planted in spring, and well supplied with water in dry weather.

Geranium Cuttings (*Idem*).—The beginning of March is not too early to prick out on a gentle hotbed, autumn-struck cuttings of Tricolor, Bicolor, and Bedding Geraniums, giving them air liberally after a few days. It will be necessary to cover the lights after a few days to keep up a suitable temperature. We should place about a handful of soil to each plant, and tie up in moss. You may then move the plants with good balls.

Our Back Volumes (*A Young Gardener*).—They all contain communications from the writers you name; and so do many of the Manuals and volumes published at our office.

Geranium (*Amy*).—Any of the principal florists who advertise in our columns could supply the variety you name.

Geranium Leaves Yellow (*C. P.*).—The leaves appear to have been kept in a close, damp, and cold atmosphere, with more than enough water at the roots. Give the plants a temperature of from 45° to 50° at night, and admit air freely, watering moderately at the root, and only when the soil becomes dry. We would further advise you to shake out the plants, free them of the old soil, and pot them in turfy loam, with one part leaf soil or old dry manure added, and a free admixture of sand. We think they will come round.

Crickets in a Forcing House (*Edward Horne*).—They are best destroyed by poison. Entice them for two or three nights with six tablespoonfuls of oatmeal mixed with a teaspoonful of aniseed and a like quantity of carraway seed, brought to the consistency of a crumbling paste with honey. If they devour these baits greedily, then on the third night add to half a pint of the oatmeal a tablespoonful of ground anise and carraway seed, and 1 oz. of arsenic. Mix thoroughly with honey, and put down the mixture pellets about the size of marbles. Chase's beetle poison is also excellent and kills them on the spot. Phosphor paste they likewise eat greedily, and it also kills them. Be careful in removing the poisoned material, and to prevent domestic animals getting at it.

Plants for Unheated Conservatory with a North Aspect (*W. T.*).—The most suitable will be hardy Ferns and hardy fine-foliaged plants, or such as require but slight protection. Of hardy Ferns, which may either be grown in rockwork and planted out, or in pots, we advise:—Adiantum Capillus-Veneris, Asplenium Adiantum-nigrum, A. marinum, A. Trichomanes, and A. Trichomanes cristatum; Athyrium Filix-fœmina, varieties corymbiferum, plumosum, multifidum, and depauperatum; Blechnum Spicant ramosum, Lastrea cristata major, L. opaca, L. Filix-mas cristata, Lomaria chilensis, Osmunda regalis cristata, Polypodium alpestre, P. Dryopteris, P. vulgare cambricum, Polystichum aculeatum, P. angulare cristatum, P. angulare pauliferum, Scolopendrium vulgare, varieties corymbiferum, crispum maximum, ramo-cristatum, submarginatum, and subcornutum, and Woodwardia radicans. The dwarfness of these may be relieved by a few plants with fine foliage, as Yucca aloifolia and variegata, Y. filamentosa and variegata, Y. quadricolor; Aralia Sieboldi and variegata, Araucaria excelsa, Retinospora plumosa, and others of the more compact and graceful-habited Conifers. A few plants of the new sorts, especially the berried sorts, come in well for such houses.

Names of Plants (*J. Lock*).—1, Echeveria glauca; 2, E. gibbiflora var. metallica, the E. metallica of gardeners. (*J. W.*).—The scraps sent are insufficient for determination. No. 2 might possibly belong to Pachysandra terminalis. (*Thos. Mayes*).—The "Wild Flowers" can be had as you desire, monthly from the beginning. We do not recommend you to use the Reindeer Moss (Cladonia rangiferina), enclosed by you, as a substitute for sphagnum. Possibly it may answer well in some cases, but we prefer sphagnum. The Orchid flowers were in very indifferent condition. 1 Appears to be a cymbidium sinense; 2, Dendrobium Pierardi. Well-rotted cow dung may safely be used for the coarser terrestrial Orchids, as Phajus grandifolius and Wallichii, Peristeria elata, &c., but of course must not be used with Cattleyas, Odontoglots, or other epiphytal species. Peat answers very well indeed for many Orchids when wired to the block instead of sphagnum, and it is not unusual to find a plant growing on a block subsequently partly sunk into a pot containing a compost of rough peat, with its accompaniment of charcoal and crocks. (*A. B. C.*).—Winter Aconite, Eranthis hyemalis. (*Huthwaite*).—1, Not in a condition fit for determination; certainly some Leguminous herb, possibly an Astragalus. 2, Habrothamnus fasciculatus.

POULTRY, BEE, AND PIGEON CHRONICLE.

MANAGEMENT OF FOWLS AT SHOWS.

Would you allow me, as a rather old breeder of fowls, to make a few remarks on the two letters in your Journal, signed by "Winner of Four Cups" and "James Clare?" The reason of poultry suffering so much from exhibition arises mostly, if not entirely, from, firstly, the unnatural state the birds are in when sent to the show; secondly, from the want of pure air in the exhibition pens; and probably, thirdly, from the birds being partially fed on some of the rubbishy mixtures called fowl foods—rather I would say *foul* foods.

With regard to the first point, it is well known to all experienced keepers of animals that it is much easier to get them into high condition than to keep them so. It seems to be almost the natural state of things, as soon as an animal has attained a certain state of perfection, that it should begin instantly to go back—that is, if you have poultry in such a condition as to be "fit to show anywhere," and then turn them down in as a healthy run as you can meet with, you will find they will not keep in this condition, but go back. Now if this is allowed to be the case (and I think few large breeders of prize poultry will fail to do so), is it at all strange that fowls penned-up in a dirty pen, or in hot close hampers or baskets, should go much more rapidly out of condition than they would at their owners' yards, and that they are very liable to those diseases caused by bad air? I say nothing about there not unlikely being diseased fowls actually at the show. It is, I believe, well known as a case in point that dogs, if sent to a show before they have had distemper, are very liable to have it as soon as they reach home. Now no one would say that improper food, or the want of a certain kind of food, will cause distemper, nor will anyone say because a healthy young dog gets distemper, that therefore there was actually some dog at the same show that had the disease at the time.

I believe that the birds your correspondents refer to were suffering from diseased livers, such being in an unhealthy state when sent to the show; if so, the ale was about the worst thing possible for them. My plan, when birds come home, is to give them nothing but warm bread and skim milk; if they look dull in the morning, a pill of simply one grain of calomel, continuing the bread and milk. That birds do not suffer from want of lime and gravel is perfectly clear to my mind, at any rate as respects cocks. I have a lot of Game cocks in pens 3 to 4 feet every way; they are fed on Indian corn, barley, and every other day a little boiled rice and skimmed milk. They are all in perfect health, though they have been penned for six or eight weeks, and look better than their brothers running at large with the hens. The pens—and here is the grand secret—are covered at the bottom with sawdust, and every day a handful or two is thrown over it, dusted over it I might say; the consequence is that with the exception of the smell of sawdust my pens and henhouses are quite sweet. I adopt the same plan with my henhouses, only in them the sawdust is about 2 inches deep all over the bottom. If all secretaries of shows would adopt this plan I should send valuable birds for exhibition with far greater pleasure than I now do. It is astonishing how soon a lad can go over a lot of pens, and how little sawdust makes things sweet. I find the same plan succeed with my chickens; and though I was warned that if the birds, young or old, ate the dust—as they cannot help doing when fed with soft food—it would kill them, it has not done so with me.

I find at some shows exhibitors have said sawdust killed their birds, and to avoid this the secretaries had spread at the bottom chaff (chopped straw), which is almost as bad a material as could be used. The same remark applies to sand gravel, for this reason, that it being the nature of fowls generally, as well as when at exhibitions, to have loose watery evacuations which are every moment giving out unhealthy fumes, it is absolutely necessary for the birds' health either to be constantly removing this liquid, which cannot be done in shows, or to deodorise it by means of sawdust or earth, and the former is after all almost the only readily attained article that can be had, and that anywhere.

I hope the bird referred to by your correspondent will recover his comb. I have known of cases in which the comb turned quite as black as he mentions, and yet came all right again. The only cases in which, according to my experience, this does not happen are where frostbite is the cause, and then I fear it is hopeless to expect any improvement. I wish your correspondents would try the sawdust plan and let your readers know the result. Would they also say what the exhibition birds were fed upon before sending them to exhibitions? as I find that birds if too highly fed will appear in perfect health, be going on quite well, and suddenly show that their livers are out of order—in fact, as I said before, they seem to thrive up to a certain point and then rapidly go back.—Amateur.

PURE-BRED versus CROSS-BRED FOWLS.

I should gladly be of Mr. Fraser's opinion that pure-bred fowls produce as many eggs as cross-bred, or even more, but my experience has invariably disproved such a result being the case. My fowls are kept in close confinement with the exception of an occasional run in the garden, and I have now a pullet (by a Dorking cock from a cross-bred hen), hatched at the end of April, which has just laid her hundredth egg, none weighing less than 2 ozs. She commenced laying at the beginning of October, is still in perfect health and condition, shows no signs of becoming broody, and promises to accomplish still greater things. Not one of my pure Brahmas kept under pre

cisely similar circumstances and costing more for food can at all approach this amount of produce; and I may also mention that to this pullet an accident happened in August, which caused her to limp about on little more than one leg for several weeks, and of course threw her back considerably. This is merely an instance and not a solitary exception, and I shall be glad to learn how to keep pure-breds (my hobby) as profitably as mongrels.—JOHN WALTON, *Croydon.*

THE JUDGING AT POULTRY SHOWS.

"D., *Deal*," (in No. 564), has taken up a subject which needs careful and impartial investigation both by the committees of poultry shows and judges. How often do we see the judgment at poultry shows called in question! In fact, I have often noticed in reports in your Journal that pen so-and-so ought to have taken the place of the first, second, or third-prize pen. Of course, we amateurs take your Journal to be an impartial authority, and (I can only speak of myself) your reports are generally highly interesting. Now it is very annoying to any person to think that he is unjustly treated, and to see it in print makes the matter ten times worse. How, then, does this mistaken judgment occur? It may be, as "D., *Deal*," suggests, that there are too few judges and too little time allowed for judging. We must all admit that the task of the judges is a very arduous and often unthankful one. But why, if there is too little time allowed for judging, do the judges undertake those arduous duties? Why do they not raise their voices, one and all, against this unjust practice, and tell the committees plainly that they will not undertake to do what they cannot possibly do honestly towards the exhibitors, and with credit and satisfaction to themselves? But let me suggest, Are there not other causes in relation to judging besides the too-little time allowed for judging? Does it follow that because a man is a good judge of Game he is also a good judge of Brahmas, Spanish, Dorkings, Hamburghs, or many other varieties? Everyone has his peculiar fancy in fowls as in other things, and it seems to me that it is impossible for one man to be capable of judging the whole of the varieties satisfactorily. Much may be written on the above subject, but all to no purpose. It occurs to me that the matter rests mostly with the exhibitors and committees of the various shows.

If the funds of any society will not admit of the proper number of judges being engaged, I would suggest that the fees be made up equally amongst the exhibitors to provide any extra judges that may be required. Clearly something must be done to make matters more satisfactory than they are at present. Now is the time for suggestions, and if those who have grievances do not avail themselves of the opportunity of making them known, it is neither the fault of the judges nor of the committees.—AMATEUR.

DUBLIN POULTRY AND PIGEON SHOW.

I WAS never more astonished than at the very unfair comment on the Pigeons at this Show, made by "A CORRESPONDENT" in your Journal of February 1st. I did not exhibit at the above Show, so this cannot be put down to disappointment.

The Pouters were judged according to the Scotch manner, which excludes the use of the tape, and which accounts for the success of the Glasgow and Belfast birds, about which there is not a word in the report. These were well proportioned as regards length of feather and limb, narrowness of girth, with fine style and carriage, looking as well off the block as on it, carrying themselves properly, and seeming to know how to manage their tails. The majority of the English and Dublin birds were longer in feather (which ought to be considered a bad property unless combined with good points), and some of extraordinary length; when off the block their bodies were almost at right angles with their legs, caused by the great length of tail (cutting an inch or two off might improve them); in fact, they were all tail, and it appeared to be always in their way. They were runtish, and lacked shape and style. A Scotch fancier remarked to me that the use of the tape was all that was necessary to judge a Pouter in England. Some of the unnoticed Barbs were hardly able to see, they were so bunged up from old age, and were in a nasty scabby condition; their necks should have been wrung long ago. The first-prize Yellow Agates had a suspicious look about their very short beaks, and most of the Short-faced birds were in the same condition. Nobody to whom I spoke seemed to think that "Mr. Waitt's best birds" should have had a prize in the class for Reds and Yellows. If they were specimens of "Mr. Waitt's best," I wonder what his second best are like. Everyone said that the third-prize Reds should have been first. They were two cocks, which seemed to escape the Judges' notice. Mr. Waitt's Blacks should have been disqualified, as they were trimmed in the most barefaced manner, but "these were unnoticed" very properly, as there were better in the class. The correspondent was quite right in his remarks on the Fantails. Though the first-prize Blue English Owls had slightly whitish rumps, still, for all that, they were the best. He says about Turbits that "Mr. P. H. Jones's Reds should have been first, with Mr. Fielding's Reds and Mr. Horner's Blacks to follow." I did not meet anyone in the Show who thought so, except, perhaps, the owners, whom I have not the honour of knowing. Mr. Seale was first and third, and Mr. Tivy second. Your correspondent probably thought that such comparatively new and unknown exhibitors as Mr. Seale and Mr. Tivy could not possibly have superior birds, and had no right to prizes. Pigeons of the best strains have been imported into Ireland within the last few years, and English exhibitors will have to make up their minds to acknowledge that they have been fairly defeated.

In reporting on Pigeon shows, I think that it is very unfair to pass over prize birds without any comment on them, which is tantamount to saying that they were not worth noticing. The first, second, and third prizes should be all noticed, with owners' names mentioned, or there should be no comment allowed at all. Condition, cleanliness, &c., should be taken into account when judging, which would prevent exhibitors from sending the same pair of birds to shows until they are fagged to death by overshowing.

The Committee of the Dublin Show made a good rule, that anyone guilty of a dishonourable practice would be disqualified and lose all prizes that he might become entitled to; and I would suggest that the disqualified birds be sold by auction for the benefit of the society. This did not prevent trimming, &c., as there were several Nuns and Jacobins trimmed, several couples of cocks, and several couples of hens; Tumblers and Barbs with burned beaks; and Black Mottles dyed over the beak. Why were none of these disqualified? An exhibitor who would exhibit his birds in their natural state is compelled, in self-defence, to "do in Rome as the Romans do," or, if he does not, what chance of a prize has he, when a worse bird than his can be made better by a clever hand? It is all this sort of work that prevents many from showing both poultry and Pigeons, and which drives so many from these fancies. I perceive one thing—that if ever I should become an exhibitor, unless things are changed, I must go in for all the dirty work at present in vogue. As I do not believe in anonymous contributions, I give my name, and expect that your correspondent will give his.—J. CROSBIE SMITH, *Terenure Villa, Terenure, Dublin.*

[After omitting many sentences pointed against the supposed contributor whom we styled "A CORRESPONDENT," and many other sentences ascribing motives and assailing supposed cliques, we readily insert the foregoing, but we advise Mr. Smith and all other exhibitors *not* to "go in for the dirty work," not only because it is dishonest, but because sooner or later they are sure to be held up to public scorn.—EDS.]

INDUCING A HEN TO SIT.

IF "A SUBSCRIBER" or anyone, will take a *laying* hen—Brahma or Cochin to be preferred—and will place her in a sitting-box, only just large enough to hold her nest, into which have been previously placed half a dozen eggs, and will keep her very warm, she will soon show a desire to sit. Her food must be stimulating, and should consist of Indian corn, raw liver chopped, buckweat, hempseed, and a small portion of bread steeped in ale.—VINCENT FRASER.

[The above will be a reply to many querists. Many years since Mr. Holroyd, a druggist at Maldon, in Essex, had a hen that would sit until she hatched them whenever he placed her on a nest of eggs.—EDS.]

SILVER-SPANGLED HAMBURGHS.

"J. K. O." seems to think there is a great deal of difference between the Silver-spangled Hamburghs of the present day and those bred a few years since. We have been breeders of them eight or nine years and see none, only that cocks such as "J. K. O." has seen in his "Poultry Book" used to win, now they must be

well spangled all over, consequently they will be a little dark in the breast. Hens it is impossible to have distinctly marked if they have any of that green lustre that I think ought to be the first point in a hen.

"J. K. O." attacks the Crystal Palace prize birds. The first-prize pen contained an "unusually good hen" (see Journal). For large, clear, and distinct spangles, it would be hard for "J. K. O." to find her equal. The cock was well spangled all over, consequently rather dark in the breast, but not too dark to win at other shows besides the Crystal Palace. Perhaps "J. K. O." has bought a first-prize pen at some show, and been breeding from the birds. This any Hamburgh breeder knows will not do.—A. & B.

CRYSTAL PALACE BIRD SHOW.

The great Canary Show of the season is among the things that were, or it will be by the time this is in the hands of many readers of the Journal. For five months—from September to February—from Whitby (that gem of a Show) to the great Derby of the fancy, the monster gathering which is now in the last day of its existence, scarcely a week has passed without one or more exhibitions of a bird which, though supposed by many to be comparatively rare, is reared in the humble home of the artisan, and in the more pretentious establishments of the rich, by thousands.

The figures in the catalogue which, by the way, is a model for all large catalogues, show an entry of 954 birds for competition, and 152 in the Selling Class. Of these 566 are Canaries, 119 Mules, 34 groups of six, 5 miscellaneous, 118 British birds, 12 Migratory birds, and 100 Foreign specimens, including some very interesting and rare birds. It will be seen that numerically the Show is a great success, which is perhaps to be attributed in a great measure to some alteration in the classification. I submitted to the Superintendent what I thought was an improved schedule, that of previous years containing some inconsistencies, and a somewhat "Bridgenorth election," all-on-one-side, treatment of some varieties; an undue share of good things falling to some, and only a meagre allowance to others, which in point of value and intrinsic excellence were worthy of more liberal treatment. These defects I pointed out in detail in my review of last year's Show when the prize money was awarded on a principle not unlike that which report assigned to the distribution of prize money in the navy in days gone by, when it was said to have been sifted through a ladder, that which fell through going to the officers, the rest to the men. An equalisation of the scale has met with a willing response from the breeders of each variety. As I said before, numerically the Show is a great success. It always is, and must of necessity be so, as the number of "sold" tickets affixed to the cages shows what an additional inducement the opportunity of sale must be. Messrs. Judd, Mackley, Newmarch and Walter alone exhibit the enormous number of 333 amongst them; Mr. Newmarch heading the poll with 125, itself a little show. But as regards *quality* there is this year a deficiency. There are birds of exceptional beauty, as witness Mr. Walter's Clear Jonque and Mealy birds which were claimed at £5 each, and many of the prize-winners have great merit, but there is not that excellence running through the whole which in previous years has evoked a frequent comment from the Judges, but which on this occasion is appended to only about ten out of the seventy-six classes. My remarks thereon will appear next week. I am writing now under difficulties and in the excitement of the Show. Mr. Young reminds me I had better "finish Cheltenham first," but as many of the Cheltenham birds are on the stages here, and the Judges have confirmed most of my decisions, I may be able to kill two birds with one stone.—W. A. Blakston.

The British and Foreign birds were well represented, as also the miscellaneous. Amongst the former were some very rare birds, only a few specimens of them having been noted as having been found in England. Take for instance the Shore Lark, of which a very fine pair in good condition, the cock bird showing the peculiar horn-like appearance, were shown by Mr. Monk, of Lewes, in Sussex. There was a pair of Lapland Buntings sent by the same gentleman, all of which we understand were captured near Brighton. A fine specimen of the Crested Lark (Alaudus cristatus) was also present in perfect plumage. Naturalists know how scarce these varieties are, and how interesting it is to find them alive, and have the pleasure of noticing their habits and mode of life under confinement. Then, again, if these be scarce, how much more so some of the Mules. Take, for instance, that between the Blackbird and the Song Thrush, a bird possessing the characteristics of both; this was the first of the kind ever known; as also a cross between the Brambling and the Chaffinch. Then there were Mules between Goldfinch and Greenfinch, Linnet and Bullfinch, Goldfinch and Bullfinch, crosses unseen until of late years, and yet beautiful in themselves.

Some new classes were added this year, one of which was for Doves of any small breed, which brought a very beautiful pair of small Australian, but although prizes were offered for the Missel Thrush and Redwing, there was no response; but let us hope another season such may not be the case, but that the liberality of the Crystal Palace Company may meet with its reward in the way of more numerous entries, as, the more varied the collection, the more pleasing, and also the more educational it is to the public.

The show of Parrots was good, but nothing remarkable beyond other years. In the Miscellaneous pens might be mentioned a nearly White Blackbird, and several Pied Linnets,

Altogether there were 1327 entries, and nearly 1500 birds were present, as there were thirty-four aviaries which contained very many varieties, and shown in a highly creditable condition. Every care was taken of the specimens during the Show, and the healthiness of the birds reflects great credit on Mr. Wilson, the able Manager of the natural history department of the Crystal Palace.

Norwich (Clear Yellow).—1, W. Walter, Winchester. 2, Bemrose & Orme; Derby. Equal 3, Bemrose & Orme; Moore & Wynn, Northampton; Adams and Athersuch, Coventry. *vhc*, Toon & Cleaver, Kettering; R. Whitaker, Derby; Smith & Preen, Coventry; Bemrose & Orme; Moore & Wynn; W. Walter, *hc*, Adams & Athersuch (3); W. Havers, Norwich (2); J. Mortimer, West Smithfield, London (2); T. Newmarch & Sons, Sydenham; Moore and Wynne (2). *c*, G. & J. Mackley, Norwich; T. Fenn, Ipswich; J. Garrett, Brighton; J. Mortimer; Smith & Preen; J. Judd, Newington Butts (2); T. Newmarch & Sons; Moore & Wynn; J. Jeffs, Ipswich.

Norwich (Clear Buff).—1 and 3, W. Walter. 2 and Equal 3, Bemrose & Orme. *vhc*, G. & J. Mackley; Adams & Athersuch; J. Mortimer; R. Whitaker; Smith and Preen (3); T. Newmarch & Sons; Moore & Wynn. *hc*, G. & J. Mackley (5); Adams & Athersuch (2); Barwell & Golby, Dallington, Northampton; W. Havers. *c*, G. Bonse (3); J. Tarr, Caledonian Road, London; F. Flexney, Caledonian Road, London; T. Fenn; J. Mortimer; Moore & Wynn; Wallace & Beloe, Berwick-on-Tweed.

Norwich (Marked or Variegated Yellow).—1, 3, and Equal 2, Adams & Athersuch. 2, Moore & Wynn. *vhc*, W. Havers; J. Mortimer; Bemrose & Orme; W. Walter. *hc*, J. Mortimer; Moore & Wynn (2); W. Walter. *c*, T. Fenn (2); J. Garrett; J. Judd; Bemrose & Orme.

Norwich (Marked or Variegated Buff).—1, Adams & Athersuch. 2, Bemrose and Orme. 3, Moore & Wynn. *vhc*, G. & J. Mackley; W. Havers (2); Bemrose and Orme. *hc*, G. & J. Mackley; T. Fenn; W. Havers; J. Mortimer; G. Tuckwood, Nottingham; H. Apted, Worthing. *c*, S. Tomes, Northampton.

Norwich (Ticked or Unevenly-marked Yellow).—1, Smith & Preen. 2, C. Gayton, Northampton. 3, R. Whitaker. Equal 3, Bemrose & Orme. *vhc*, Bemrose & Orme; W. Walter. *hc*, G. & J. Mackley; Adams & Athersuch; Smith and Preen; T. Newmarch & Sons. *c*, G. & J. Mackley; J. Mortimer; J. Judd; W. Walter.

Norwich (Ticked or Unevenly-marked Buff).—1, W. Walter. 2, J. Spence. 3 and Equal 3, Adams & Athersuch. *vhc*, Barwell & Golby; T. Mann, Camberwell; Bemrose & Orme; S. Staton & Co., Derby. *hc*, G. & J. Mackley; Toon and Cleaver; Smith & Preen; J. Hayes, Sutton-in-Ashfield (2); Bemrose and Orme; W. Walter. *c*, G. & J. Mackley; W. Havers (2); J. Mortimer (2); T. Newmarch & Sons; W. Walter.

Norwich (Marked or Variegated Crested Yellow).—1, J. Mortimer. 2, Toon and Cleaver. 3, W. Havers. *vhc*, J. Judd; Moore & Wynne. *hc*, G. & J. Mackley; Moore & Wynn. *c*, T. Childs, Bow; T. Fenn; W. Havers.

Norwich (Marked or Variegated Crested Buff).—1, Bemrose & Orme. 2, W. Walter. 3, J. Mortimer. *vhc*, G. & J. Mackley; G. Cox, Northampton; W. Havers (2). *hc*, G. & J. Mackley; Barwell & Golby; T. E. Jeffs; Moore and Wynn. *c*, G. & J. Mackley; H. Apted; Moore & Wynn.

Norwich (Yellow, with Clear Grey or Dark Crest).—1, J. Mortimer. 2, Moore and Wynn. 3, Bemrose & Orme. *vhc*, Barwell & Golby. *hc*, G. Tuckwood; J. Judd. *c*, J. Judd.

Norwich (Buff, with Clear Grey or Dark Crest).—1 and 2, J. Mortimer. 3, H. Apted. *vhc*, G. & J. Mackley; Barwell & Golby; T. E. Jeffs; W. Havers; J. Mortimer; W. Lulham, Brighton; Bemrose & Orme; H. Apted. *hc*, G. & J. Mackley; T. E. Jeffs; J. Mortimer; Moore & Wynn; J. Jeffs. *c*, W. Havers; G. Tuckwood.

Belgian (Clear and Ticked Yellow).—1, J. Rutter, Sunderland. 2 and 3, J. Hayes. Equal 3, J. Poole. *vhc*, J. Doel (2); J. Rutter (2). *hc*, J. Doel; G. & J. Mackley; J. N. Harrison. *c*, T. Dove; Wallace & Beloe.

Belgian (Clear and Ticked Buff).—1 and 3, Rutter. 2, J. N. Harrison. *vhc*, J. Doel; J. Poole; T. Dove. *hc*, J. Doel; G. & J. Mackley; J. Rutter.

Belgian (Variegated Yellow).—1 and 3, J. Rutter. 3, J. Hayes. *vhc*, T. Dove, Sutton-in-Ashfield.

Belgian (Variegated Buff).—1, J. Hayes. 2, T. Dove. 3, J. Poole.

London Fancy (Jonque).—1, W. Brodrick, Chudleigh. 2 and 3, T. Clark, Sutton, Surrey. *vhc*, S. Prince; J. Waller (3); C. Gayton. *hc*, R. Poole; Barwell and Golby; W. J. Marsbell, New Barnet; Moore & Wynn. *c*, Toon & Cleaver; J. Waller; Moore & Wynn.

Cinnamon (Buff).—1, Barwell & Golby. 2, Moore & Wynn. 3, J. Tear & Co., Wellingborough. *vhc*, A. B. Etherington; Toon & Cleaver; Wallace & Beloe. *hc*, G. R. Kennerley; R. Poole, Malden; Barwell & Golby; G. Cox. *c*, C. W. Hooke; J. Tear & Co.; H. Apted (2); Moore & Wynn.

Cinnamon (Marked or Variegated).—1 and 2, J. Taylor, Middlesborough. 3, W. Barnes. *vhc*, H. Stanley, Battersea; J. H. Hadland, Carshalton. *hc*, C. A. Stein, Peckham.

Canary (Any other variety).—1, W. Walter. 2, Wallace & Beloe. 3, Moore and Wynn. *vhc*, J. Spence, Sunderland; W. C. Selkirk, Dover (2); W. Walter. *hc*, R. Hawman; E. Stanfield, Bradford; Master J. Tennent, South Norwood; T. Newmarch & Sons. *c*, J. N. Harrison, Belper.

Goldfinch Mule (Evenly-marked Yellow).—1 and 2, J. Doel. 3, H. Ashton. *vhc*, J. Doel; H. Ashton; E. Stanfield. *c*, W. Barnes, Cannon Street, London.

Goldfinch Mule (Evenly-marked Buff).—1, J. Baxter. 2, E. Stanfield. 3, T. E. Jeffs. *vhc*, H. Ashton; W. C. Burniston, Middlesborough; J. Stephens, Middlesborough; W. Needler, Hull; W. Barnes. *hc*, J. Doel. *c*, Miss A. Inder, Guildford; T. Muldoon, London.

Goldfinch Mule (Any other variety of Yellow).—Special, H. Ashton. 1, 2, and 3, J. Doel. *vhc*, H. Ashton; E. Stanfield. *hc*, G. & J. Mackley; J. Baxter; E. W. Lulham.

Goldfinch Mule (Any other variety of Buff).—1, J. Doel. 2, H. Ashton. 3, T. E. Jeffs. *vhc*, J. Doel; E. W. Lulham. *hc*, J. Doel.

Goldfinch Mule (Dark Jonque).—1, J. Stephens. 2, J. Taylor. 3, E. Stanfield. *vhc*, R. Hawman, Middlesborough; T. E. Jeffs; Moore & Wynn; W. Mafield.

L. Chapman, Northampton. *hc*, J. Goode, Leicester. *c*, G. Cox; J. Jeffs. Northampton.

Goldfinch Mule (Dark Mealy).—1, Wallace & Beloe. 2, W. M. L. Chapman. 3, G. Cox. *vhc*, W. Holmes, Nottingham; Moore & Wynn. *c*, G. & J. Mackley; R. Hawman; G. Tuckwood; T. Moldoon.

Linnet Mule.—1, J. Spence. 2 and 3, J. Stevens. *hc*, W. Barnes; J. Judd.

Mules (Any other variety).—Prize, T. J. Monk, Lewes; S. Tomes; A. Skinner, Faversham. *vhc*, H. Ashton; W. Yeoman; E. Stanfield (2); W. Verner, Westbourne Park, London.

Six Norwich Canaries in One Cage.—1, Moore & Wynn. 2, T. E. Jeffs. Equal 3, G. & J. Mackley and Moore & Wynn. *vhc*, T. E. Jeffs; T. Fenn; W. Waller; T. Newmarch & Son. *hc*, T. E. Jeffs; W. Barnes.

Six Belgian Canaries in One Cage.—1, J. Rutter. 2, G. H. Nutt, Maidstone. 3, J. Doel.

Six Lizards in One Cage.—1, W. C. Selkirk. 2, J. Hayes. 3, Clark & Hooke. *vhc*, T. W. Fairbrass, Canterbury; Rev. V. Ward. *hc*, Clarke & Hooke; T. W. Fairbrass.

Six Goldfinch Mules in One Cage.—1, 2, and 3, J. Doel.

Miscellaneous.—Prize, J. Baxter (2); F. H. Gardiner.

Bullfinch.—Prize, J. N. Harrison. *hc*, G. & J. Mackley. *c*, O. Nicholaon; W. Waller.

Goldfinch.—Prize, Moore & Wynne. *hc*, T. Land; Moore & Wynne. *c*, J. Doel; J. Goode; J. Judd.

Linnet.—Prize, J. Judd. *hc*, J. N. Harrison. *c*, J. Spence; Miss M. A. Robinson, Sydenham; W. C. Barnston; A. Webster, jun.

Skylark.—Prize, J. Judd. *hc*, G. H. Nutt (2). *c*, J. S. Benton; G. H. Nutt. Woodlark.—Prize, W. Walter.

Robin.—Prize, G. Cox.

Blackbird.—Prize, G. & J. Mackley. *vhc*, E. Sweeting, Sydenham; D. Hunt. *c*, S. Harding.

Song Thrush.—Prize, W. Price. *hc*, N. Lowe, Norwood. *c*, W. Beckett, Gipsy Hill.

Starling.—Prize, G. H. Nutt. *hc*, T. B. Bailey. *c*, J. Judd.

Magpie.—Prize, G. & J. Mackley.

Jay.—Prize, Miss M. A. Robinson.

Any other Variety of British Birds.—Prize, T. J. Monk (Shore Larks); Rev. T. S. Carter (Avisers); J. Judd (Variegated Linnets and Snow Buntings); A. Skinner (Black and White Blackbird). *hc*, J. Young, Notting Hill (Aviary); E. Hodgkinson (Aviary); G. Cox (Yellowhammer); A. Webster, jun. (Bramble Finch); T. Newmarch & Sons (Pied Linnet and Snow Buntings, 2). *hc*, G. H. Nutt (Tree Sparrow). *c*, B. Verrall (Variegated Chaffinch).

BIRDS OF PASSAGE AND MIGRATORY BIRDS.

Blackcap.—Prize, L. Cossavella, Finsbury.

Nightingale.—Prize, G. Coram, Cambridge. *vhc*, G. Cox.

Siskin or Aberdevine.—Prize, G. & J. Mackley. *vhc*, A. Webster, jun.

Any other Variety.—Prize, W. Verner (Crested Lark); T. J. Monk (Lapland Buntinge).

FOREIGN BIRDS.

Cockatoo (Lemon or Orange-Crested).—1, M. George, London Docks.

Cockatoo (Leadheater or Rose-breasted).—1, T. Newmarch & Sons. 2, A. Vicars.

Any other Variety.—Prize, T. Newmarch & Sons (Slender-billed). *vhc*, Mrs. Drinsmire.

Parrots (Grey).—1, J. Cooley. 2, H. Jenner, Camberwell. *vhc*, J. Judd; T. Newmarch & Sons.

Parrots (Green or any variety of Large, except Grey).—1, Rev. A. W. Booker, Burford (Amazon). 2, J. Judd (Green). 3, W. Walter (Red). Extra, T. Newmarch & Sons (Mealy Rosella, Bulla Bulla, and Penunanter).

Parrots (King).—Prize, T. Newmarch & Sons. *c*, J. Judd.

Parakeets (Ring-necked).—Prize and *vhc*, T. Newmarch & Sons. *c*, S. Robinson, Sydenham.

Parakeets (Australian Broad-tail).—Prize, E. J. Oliver. *hc*, Mrs. Wood, Norwood.

Cockatoals.—Prize, T. Newmarch & Sons. *hc*, T. Newmarch & Sons; T. B. Bailey, Thirsk.

Parakeets (Australian Grass).—Prize, J. Judd. *hc*, Mrs. B. T. Walse, Brixton.

Doves (Barbary or Ring).—Prize, J. Lactchford, Norwood.

Doves (Small).—Prize, T. Newmarch & Sons (Australian).

Sparrows (Diamond).—Prize, Miss Rosher, Bedford Square, London. *vhc*, Master C. B. Budd, Peckham Rye. *c*, W. Walter.

Sparrows (Java).—Prize, T. Newmarch & Sons. *vhc*, Mrs B. T. Walshe.

Shells (Any variety).—Prize, J. Judd (Orange checked). *vhc*, T. Newmarch & Sons (Zebra). *hc*, T. Newmarch & Sons (Orange-checked); W. Walter (St. Helena). *c*, T. Newmarch & Sons (St. Helena).

Cardinal (Red-headed).—Prize, E. Sweeting.

Foreign Birds (Any other variety).—Prize, Miss Rosher (Madagascar Bird); Miss J. H. Price (Tame Japaoese Finch); L. Cossavella (Italian Solitary Thrush). *vhc*, Master C. B. Budd (Niger Mannskins). *hc*, Dr. Hosford, Stratford (Indian Mina or Mocking Bird); T. Newmarch & Sons (Bronze Mannakins); W. Walter (Pin-tail Nonpareil). *c*, T. Grey, Tottenham Court Road (Australian Piping Crow); T. Newmarch & Sons (Silver Beaks and Red-headed Macaw).

Judges.—*Canaries* : Messrs. Barnesby, Moore, and Willmore. *British and Foreign Birds* : Messrs. John Jenner Weir, F.L.S., and Harrison Weir, F.R.H.S., assisted by Mr. F. W. Wilson.

PORTSMOUTH POULTRY SHOW.

This was a very excellent show of both poultry and Pigeons. The arrangements, however, were certainly open to much improvement, the entries for the Selling classes having the most important and best-lighted position appointed to them, whilst the principal varieties were in many cases placed in situations in which it was difficult to see anything of their peculiarities. The placing plain boards directly upon the wire tops of the pens, whilst the only light was from the roof of the building, proved most objectionable, and appeared to have not a single redeeming feature. *Dorkings* were remarkably good, and the *Game* fowls, *Spanish*, *Cochins*, and *Brahmas* both Dark and Light, were exceedingly praiseworthy. A class for Andalusians brought no less than ten entries of capital fowls of this really useful breed. *Hamburghs* and *Polands* were well represented, and the classes of them extensive. In the Variety class Malays and White Spanish were the successful breeds. The Game *Bantams* were not so good a class in the eyes of visitors, as they actually were showing to great disadvantage, all the best pens being much exhausted by repeated exhibition.

Exceedingly large Selling classes comprised many most valuable pens, and consequently the number of lots claimed was unusually great.

Chinese Silver *Pheasants* were the only variety exhibited in the class for Pheasants. A very large entry of *Rabbits* and *Pigeons* completed one of the best Shows ever held in this neighbourhood.

Game (Black, and other Reds).—1, H. Gibson, Brockenhurst. 2, J. Jekin Eltham. 3, W. H. Stagg, Netheravon. *hc*, W. H. Stagg (2); H. Gibson.

Game (Any other variety).—1, E. Martin, St. Austell. 2, E. Wicwood, Worcester. 3, C. F. Terry, Tonge. *hc*, F. Pittis, Newport, Isle of Wight; A. Cosens, Arundel; J. Jekin; G. Potts, Chartham.

Cochins (Buff and Cinnamon).—1, H. Lloyd, jun., Handsworth. 2, S. R. Harris, Cusgarne. 3, Miss F. Milward, Newton St. Loe. *hc*, D. W. J. Thomas, Brecon; J. Sares, Pesford, Guildford. *c*, F. W. Rust, Hastings; J. Long, Plymouth; Mrs. C. F. Clay.

Cochins (Any other variety).—1, F. Brewer, Lontwithiel. 2, C. F. Wilson, Totton. 3, F. G. Coleridge, Henley. *c*, A. C. Travers, Falmouth; H. Yardley. Brahmas (Dark).—1, H. Dowsett, Fleshey, Chelmsford. 2, H. D. Dent, Cobham. 3, Rev. J. Ellis, Bracknell. *hc*, H. D. Dent; J. Chisman, Southampton. *c*, E. Martin.

Brahmas (Light).—1, H. M. Maynard, Holmewood, Isle of Wight. 2, H. Dowsett. 3, J. Sares. *hc*, Rev. N. J. Ridley, Newbury.

Brahmas (Light).—*Chickens*.—1, M. Leno, Markyate Street. 2 and 3, Mrs. A. Williamson, Leicester. *hc*, J. Pares; H. M. Maynard; J. Long. *c*, Rev. M. Rice, Steyning; Mrs. T. Turner, Avon; Mrs. Woolcombe, Lewdown; Mrs. H. Popham, Chasetcherch; M. Hall, Millbrook, Southampton; T. A. Dean, Marden, Hereford; J. Long.

Dorkings.—1, J. Chisman. 2, Rev. G. F. Hodson, North Petherton. 3, Lord Turner, Shillingslee Park. *hc*, W. S. Marsh, Winklands Oaks, Deal; Lord Turner; J. Shillingslee, Shillingslee Park.

Spanish.—1, Miss E. Brown, Chardleigh Green. 2, H. Brown, Putney Heath. 3, F. James, Peckham. *hc*, F. Pittis.

Andalusians.—1, W. Westcott, Landport. 2, T. Moore, Landport. 3, W. Wildey, Landport. *hc*, F. Pittis. *c*, J. C. Phair, Bedhampton.

Hamburghs (Golden-pencilled).—1, H. Moore, Weston-super-Mare. 2, F. Pittis. 3, G. W. Greenhill, Ashford. *hc*, W. Speakman, Nantwich. *c*, C. H. Mayo, Paddlestown; R. S. S. Woodgate, Feesbury, Tunbridge Wells.

Hamburghs (Silver-pencilled).—1 and 2, F. Pittis. 3, C. H. Mayo.

Hamburghs (Gold and Silver-spangled).—1, Miss E. Brown. 2, R. Wilkinson, Portsea. 3, R. H. Ashton, Mottram. *hc*, S. Newick, Hinton St. George; S. R. Harris. *c*, John Shillingslee Park, Ashford.

Polands.—1, J. Hinton, Warminster. 2, D. Mutton. 3, G. W. Boothby, Louth. *hc*, H. D. Dent, Cobham; D. Mutton.

French.—1, Rev. N. J. Ridley (La Fleche). 2, H. Wyndham, Rockhampton (Cuve-Cuns).

Any other Variety.—1, Rev. N. J. Ridley (Malays). 2, T. Norwood, Salisbury (Minorcas). *hc*, J. Hinton (Malays); R. Wilkinson (Minorcas); G. F. Hodson (Malay); C. Wilson (Hamburghs). *c*, S. R. Harris (Minorcas); W. Boots, Landport (Guinea Fowls); Ashford.

Game Bantams (Black and other Reds).—1, Rev. F. Cooper, Ampney Crucis. 2, W. Adams, Ipawich. 3, H. Gibson, Brockenhurst. *c*, J. Pares; F. Pittis; Bainton & Nicholson.

Game Bantams (Any other variety).—1, F. Fielder, Southsea. 2 and 3, Rev. F. Cooper. *hc*, Rev. F. Cooper; F. Pittis; J. Long. *c*, F. Pittis.

Bantams (Any variety except Game).—1, M. Leno. 2, R. Ashton. 3, H. M. Maynard. *hc*, J. Wilson, King's Heath, Birmingham. *c*, G. Hodson; M. Leno; H. Yardley, Birmingham.

Ducks (Aylesbury and Rouen).—1, F. Pittis. 2, J. Pares. *hc*, T. Hawken, Lostwi hiel; O. W. & H. Hoare, Brownlow.

Ducks (Any other variety).—1, T. E. Terry (Kasarka). 2, M. Leno (Mandarin). *hc*, R. S. S. Woodgate (Labrador); H. Brown (Carolina); T. E. Terry; M. Leno (Carolina).

Geese.—1, Mrs. Ford, Shirley. 2, J. Pares.

Turkeys.—1, T. Bailey, Landport. 2, Rev. N. J. Ridley. *hc*, C. E. Clay. *c*, J. Howard, Cosham.

Pheasants.—2, Mrs. Turner.

Selling Class.—1, W. Wildey, Cosham (Andalusians). 2, F. Pittis. 3, C. Wilson (Cochins). *hc*, J. Hinton (Malays); A. E. Smith, Gosport (Dorkings); H. M. Maynard (Hamburghs); H. Dent (Cochins); J. King, Oxford (Hamburghs); H. Dowsett (Brahmas); H. Brown (Spanish); J. Pares. *c*, W. W. Paine, Basing (Polands); D. Dunn, Hungerford (Dorkings); H. Dent (Cochin); M. Leno (Brahmas); F. Brewer.

Selling Class.—*Cock or Cockerel*.—1, J. N. Whitehead, Gnatton (Cochin). 2, J. King (Hamburgh). 3, H. Dowsett (Brahma). *hc*, D. W. Thomas, Brecon (Cochin); J. Sares, Guildford (Cuve-Cuet); T. E. Terry (Malay); G. W. Greenhill (Dorking); M. Leno (Brahma); F. Pittis; A. Cosens, Arundel (Game); A. E. Smith (Andalusians); G. Potts, Chartham. *c*, A. E. Smith (Dorking); O. W. & H. Hoare; F. W. Rust (Cochin); S. Newick.

Selling Class.—*Hen or Pullet*.—1, J. N. Whitehead (Cochin). 2, H. Brown. 3, J. Howard. *hc*, Lord Turner (Dorkings); W. Wescott; C. Pannell, Weybridge (Dorking); J. Pares (Duckwing); E. J. Reeves, Hayward's Heath (Brahma); H. Dent (Brahma); F. Fielder (Brahma); M. Leno (Dorking); F. Pittis; J. Moore (Andalusians); J. Howard. *c*, A. G. Rutherford, Tentworth, Midhurst; H. Dent (Cochin and Poland); F. Fielder (Game); M. Leno; H. Dowsett.

PIGEONS.

Pouters.—1, C. L. Gilbert, Salisbury. 2, Mrs. Ladd. *c*, G. H. Gregory, Taunton; W. Van Haansbergen, Newcastle.

Barbs.—1 and 2, H. M. Maynard. *hc*, H. Yardley; F. Fielder; W. Van Haansbergen.

Carriers.—1, H. Yardley. 2 and *c*, W. Quickfall, Shanklin. *hc*, C. L. Gilbert; F. Fielder; H. Jacobs, Sandown; W. Quickfall.

Dragoons.—1 and *vhc*, W. Bishop, Dorchester. 2, H. Allsopp, Birmingham. *hc*, C. L. Gilbert; Master Jacobs.

Tumblers.—1 and 2, Mrs. Ford. *hc*, H. Yardley.

Fantails.—1, Mrs. Ladd. 2, H. M. Maynard. *hc*, H. Yardley; H. M. Maynard.

Any other Variety.—1, F. Pittis (Jacobins). 2, C. L. Gilbert (Maltese). *hc*, C. L. Gilbert (English Owls); H. M. Maynard (Jacobins); F. Hodding, Salisbury (Turbits); W. Bishop (Persiana and Archangels); H. Yardley; W. Van Haansbergen.

Selling Class.—1 and 3, H. M. Maynard (Jacobins). 2, A. A. Vander Meerach. *hc*, F. Fielder (Antwerps and Turbits). *c*, O. E. Cresswell, Bagshot, Surrey (Fantails); F. Fielder (Dragoons); G. Gregory, Taunton (Owls).

CAGE BIRDS.

Norwich (Clear Yellow).—1 and 2, W. Walter, Winchester. *vhc*, T. Willsher, Chichester. *hc*, H. Apted, Broadwater. (2); *c*, & D. Carver, Landport.

Norwich (Clear Buff).—1 and 2, W. Walter. *hc*, H. Apted (2). *c*, C. & D. Carver.

Norwich (Evenly Marked or Yellow Variegated).—1 and *vhc*, W. Walter. *vhc*, M. Leno, and *c*, H. Apted.

Norwich (Evenly Marked or Buff Variegated).—1, *vhc*, and *c*, H. Apted. 2 and *hc*, W. Walter.

Belgian (Clear Yellow).—1, T. Moore, Fareham. 2, O. Nicholson. *vhc*, A. E. Smith, Gosport; O. Nicholson; T. Moore.

Belgian (Clear Buff).—1 and 2, A. E. Smith. *vhc*, O. Nicholson.

Belgian (Any other variety).—1, *vhc*, and *hc*, O. Nicholson. 2, T. Moore. *c*, C. Davies, Landport.

Lizards (Gold and Silver-spangled).—1, O. Nicholson. 2, L. Nunn, Southsea. *vhc*, O. Nicholson; A. E. Smith. *hc*, A. E. Smith. *c*, L. Nunn.

Goldfinch Mule.—1 and 2, R. Hawman, Middlesborough. *hc*, T. Willsher. *c*, L. Sparks, Landport; Bainton & Nicholson.

Canary or Mule (Any other variety).—1, O. Nicholson. 2, H. Apted. *vhc*, W Walter; H. Apted; T. Wilsher; C. Trower, Southsea. *hc*, O. Nicholson; L. Naun.

BRITISH BIRDS (Any other variety).—1, T. Willsher. 3, J. Harrison, Belper. *vhc*, J. Farlow, Southsea; W. Boots. *hc*, W. Smith. *c*, C. Trower.

FOREIGN BIRDS (Any variety).—1, J. Smart, Landport (Parrot). 2, C. Trower (Cockatoo). *vhc*, A. Van Senter, Southampton (Portuguese Lark); W. Walker (Spice Bird and Parrot). *hc*, G. Stanfield (Rosellas); G. Wilkinson (Paroquet). *c*, G. Stanfield (Rock Parrot).

RABBITS.

LENGTH OF EAR.—1, W. H. Webb, Coseley. 2, T. E. Terry, Tong, Leeds. *c*, A. H. Easten, Hull.

BLACK AND WHITE AND BLUE AND WHITE.—1, King & Quick, St. John's Wood. 2, F. Loveland, Lisson Grove, London. *hc*, J. Grant, Landport; T. E. Terry; King & Quick; A. L. Pearce, Doncaster; A. Easten.

GREY AND WHITE AND YELLOW AND WHITE.—1, W. H. Webb, Bilston, Stafford. 2, T. E. Terry. *vhc*, E. Cantelo, Newport; T. E. Terry; King & Quick; A. H. Easten.

TORTOISESHELL.—1, T. E. Terry. 2, H. C. Perrin, Brighton. *hc*, A. H. Easten; King & Quick.

SELF-COLOUR.—1, H. Cawood, Thorne. 2, A. H. Easten. *hc*, W. Webb; T. E. Terry. *c* E. Cantelo.

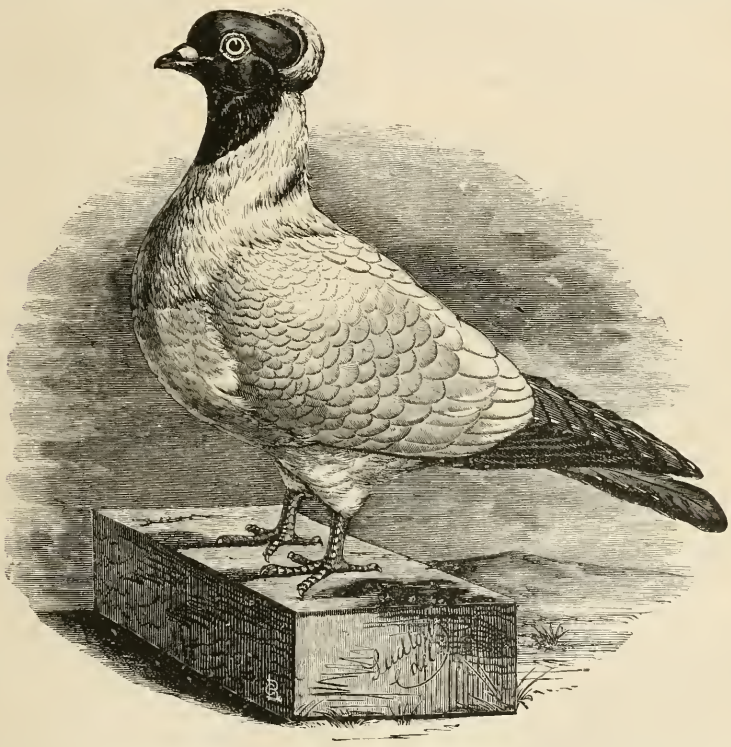
ANY FOREIGN VARIETY.—1 and 2, T. E. Terry. *vhc*, T. E. Terry; A. Pearce. *hc*, T. E. Terry (2); A. H. Easten; A. Philips, Oaklands, Waterloo. *c*, A. Clayton, Ryde.

WINNERS OF CUPS.—For most Points in Poultry, Mr. Pittis; for Brahma Chickens, Mr. Leno; for Brahma Adults, Mr. H. M. Maynard; for Andalusians, Mr. Westcott. For the most Points in Pigeons, Mr. H. M. Maynard; for the most Points in Norwich Canaries, Mr. Walter; for the most Points in Belgian, Mr. Nicholson; for the best Belgian, Mr. T. Moore; for the most Points in Rabbits, Mr. Terry.

JUDGES.—*Poultry:* Mr. Edward Hewitt, and Mr. W. B. Tegetmeier. *Pigeons:* Mr. F. C. Esquilant. *Cage Birds:* Mr. A. Willmore. *Rabbits:* Mr. E. Owen.

THE NUN PIGEON.

THIS variety is a general favourite among the Toy fanciers, and on account of its hardiness and docility it is particularly suitable for the novice. It soon accommodates itself to its surroundings, breeds well, and seldom fails to rear its offspring;



consequently Nuns are very useful for nurses, but when they are highly bred they are not so reliable in this capacity.

The chief attraction in a Nun is usually considered to be the perfectness of its markings, and a too-close attention to this has prevented their being bred to a high standard in other points, which adds so much to their beauty. The result of breeding for feather only, has more particularly caused the breed to deteriorate in form and carriage, and to become coarse and large.

The Nun should be very merry, small, and neat—very little larger than a Tumbler. The shape should be elegant, and the carriage sprightly. Whatever the colour, it should be deep and rich, with the tail of one uniform shade and of equal depth and richness as the head. In all Nuns the feathers of the head, veil, flights, and tail, with the upper and under tail coverts, should be of one colour, and those of the remainder of the bird perfectly white.

The black-headed variety is the most numerous; probably because it is the most striking and pleasing in contrast with the white body. The beak ought to be small and jet black, without any shade of ashy greyness about the nostrils or beak-wattle. The head should be small and round, rising with tolerable boldness from the beak; the irides of the eyes ought to be pearl white, and the eyelids forming ceres, or white fleshy circles, around the eyes. A gravel eye is inadmissible in a good Nun, and feathers overhanging the upper eyelid are a serious fault. In the high-bred birds the feathers of the hood are perpendicular, and do not form a cap over the head. A well-defined hood is a most important point; it should be large and the top square, it should also be as thin as possible, to be

of a perfect form, so that the loss of a single feather would break the evenness and show the deficiency. The less lined with the coloured feathers the hood is, the more admired. The veil or upper part of the throat should be of the colour of the head, and should extend well backward to the side of it, but not behind it; the veil should also be quite even on each side of the throat, of good round form, and should not extend too far down. The head should be thrown back, and the neck be small, and gracefully enlarging until it be lost in a full breast.

There should be from eight to ten coloured flight feathers in each wing, but ten we consider the best, as it causes a more evenly cut line than any other number, and when the two wings are brought together upon the back, they form a most perfect saddle. The upper and under tail coverts should also be as even as possible. The legs should be clean, and of a bright red colour, which contrasts so well with the white thighs. The claws should be black.

When the specimen is black, the whole of that colour should be deep, glossy, and intense, and the flight and tail feathers free from a bronze, blue, or mousey appearance.

As the size of a Nun is such a material point we may say that the weight of a good specimen should not exceed 10 ozs. when in high condition.—Birmingham Columbarian Society—J. W. Ludlow, *Secretary*.

WHITEHAVEN POULTRY SHOW.

The Show held in the Riding School, Whitehaven, last week was very successful, and the improvements made by the Committee in the general arrangements deserve especial mention, for on no previous occasion has the light been so generally good, nor the space for the accommodation of visitors so ample, although the entries at this year's meeting exceeded those of last season by nearly a hundred pens.

A striking portion of the Show was the entry of White *Cochins*, and we speak advisedly when we say that never before in this kingdom has so good and numerous a display of this valuable breed been witnessed. These birds were mostly shown in truly exquisite condition, and they were of much larger size and more marked character than usual. The Buff Cochins were remarkably good and extensive entries, though some of them were quite overshown, and the Partridge-feathered, though few in number, were really good. In Dark *Brahmas* the hens showed to somewhat greater advantage than the cocks, as they evidently endure continuous exhibition much better than their male companions. Strange to say, throughout the whole Exhibition not a single pen of Light Brahmas was entered, not even in the Selling class. There was a very grand display of *Dorkings*, including the most choice specimens from Messrs. Lionel Patton, Holt, and Dickenson. The Silver-Grey Dorkings proved also exceedingly good, and were, therefore, a strong and superior class at Whitehaven. *Spanish* were most excellent, and Mr. Charles Brierley secured the silver cup for this breed with a truly grand pen. The *Game* classes were not only very superior, but most of the birds were shown in extraordinary condition. The principal winners in this division were Messrs. James Fletcher, William Barnes, H. Julian, and E. Ackroyd. In the Extra Variety class Golden and Silver-spangled Polands were first and third, and Black Hamburghs took the second prizes.

Game *Bantams*, though very extensive classes, were mostly quite out of show trim, from having been almost continuously of late in the exhibition pen; the prizetakers were admirable specimens. The Selling class, from the fact of an excellent sewing machine being offered as the first of five prizes, was remarkably large, nor can we call to mind any class of the same description proving so generally good from end to end, the fact being scarcely a pen of inferior birds of any kind could be pointed out. The pen of Black Spanish that were the winners of the sewing machine were evidently well worth seven or eight times the restricted price that is usually the limit of Selling classes; but as by a prudent regulation of the Committee all the birds in the Selling classes were to be sold under the hammer on the second day of the Show, the excess, if any, beyond the entry price, if sold, having to be equally divided between the Society and the exhibitor, no collusion in "claiming" by the owners could be put in practice, and as a great number of pens of very high value would thus be offered, no doubt a very spirited and remunerative result would ensue. We have not, however, heard any particulars of the sums realised, but consider this regulation to be one that has long been needed at the majority of shows in the Selling classes.

Geese and *Turkeys* mustered only six pens in the classes combined, but all six were superior exhibits.

We have purposely left the mention of the *Hamburgh* classes to the last, having, as faithful journalists, to allude to no less than three discovered instances of "trimming" in this division of the Show alone, one of these, at least, being, we are sorry to say, of the most heartless and cruel character that can well be imagined. We must preface our remarks by saying only seldom have the classes for Hamburghs contained so many perfect birds as those on view at Whitehaven. There being a distinct rule against the "clipping" of plumage and "trimming" generally, the Committee very properly withheld in all three of these instances the ill-gotten positions previously granted to the respective pens, and we cannot but express a most hearty wish that the open exposure of the names and practices resorted on this occasion may prove, at least for a time, some little deterrent to actions so grossly cruel and palpably dishonourable.

As these were very serious charges, it was quite requisite they should be supported by the strongest evidence, and our readers will look with grave anxiety to the mode adopted to ascertain the truth of the accusations. To this end a full meeting of the Committee was called for an early hour on Friday morning, the 9th instant, and although, unfortunately, Mr. Teebay had been compelled to return home on the previous afternoon, having been summoned to give evidence in a court of justice, Mr. Hewitt was luckily still on the spot, and the examination of the pens in dispute was openly carried out in the presence not only of all these gentlemen, but also of a few of the principal exhibitors, so that not a single doubt could be entertained by anyone as to the facts about to be stated. We will first allude to pen 216, being the pen of Golden-spangled Hamburghs to which the silver cup for the best pen of Hamburghs was awarded, exhibited by Mr. John Rollinson, of Lindley, near Otley, Yorkshire, in which the plumage of the hen had been most cleverly "clipped" to take away the white tips to the general plumage, with which no small portion of her feathers had been "flecked." On taking her into a good light it was obvious that a great portion of her feathers had been tampered with, though it must be admitted it was scarcely visible in a moderately dark pen. One feather was carefully drawn from the back, and another from the breast of the hen that had been the least cleverly manipulated, and these feathers were permanently taken into the possession of the Committee as standing proofs; nor must it be imagined these were the only two, as scores of feathers more or less dexterously "clipped" still remained, and could have been produced, if wanted, in confirmation of the extent of the deception that had been practised.

The case next in order was pen 239, Silver-pencilled Hamburghs. In this instance a considerable portion of the sickle feathers of the cock were dyed black. This pen was exhibited by Mr. David Lord, of Daisy Cottage, Stacksteads. By means of a chemical appliance the colour was discharged in those portions of the feathers that had been operated upon, whilst no change whatever took place in such parts of the same feathers as were naturally black. The Committee, and, in fact, every bystander, could only express their thorough conviction, but as the bird would have been injured by the extraction of the sickle feathers, it was returned to the pen without the withdrawing of a single feather.

The last case was, beyond question, not only a gross attempt at deception, but one of such unpardonable torture to the bird operated upon, as to urgently demand the interference of the Society for the Prevention of Cruelty to Animals. This pen stood in the catalogue as 230, Golden-pencilled Hamburghs, the property of Mr. Joseph Walker, of Bristwith, Ripley, Yorkshire. It was noticed that the cock in this pen threw its head about in a very distressed and unusual manner, and that at intervals it raised its foot, apparently with the intention of touching its comb, but every successful effort seemed to produce great suffering. On taking this cock to a strong light, not only could it be perceived that the comb was evidently inflamed, but also that the extreme point of a pin or needle projected over the nostrils. It was most firmly embedded, and would not draw through even with tweezers, but was at last, after some considerable pulling, extracted by the opening at which it had been forced through the whole of the comb. It now proved to be a strong pin, with the head still perfect, but the shank somewhat cankered, a circumstance which no doubt increased not only the difficulty of extraction, but also produced the inflammatory symptoms before noticed. This poor bird was returned to its pen evidently much relieved, but the pin is still in the safe keeping of the Committee. By the conclusive means used for conviction the Committee were perfectly satisfied, and the respective owners lost a silver cup, a second prize, and a high commendation.

In the *Pigeon* department Mr. Ord's pen of well-known Dun Carriers were the winners of the silver medal for the best pen of Pigeons in the Show. Perhaps a greater novelty in Pigeons has not been seen for years past than a pair of quite a new variety, sent by Mr. A. Prosche, of 6, Fagdiveg, Dresden, at a carriage expense alone of over 16s. to their owner, quite irrespective of the entry fee, and which, from their singularity, were, at the suggestion of the Judges, awarded an extra first prize. These strange Pigeons had much of the general character of small foreign Blue Owls, being perfectly frilled on the crop, whilst immediately under the throat was a well-defined semicircle of feathers turned *upwards*, the points extending to behind the

ears, somewhat suggestive of the cowl of a Jacobin Pigeon inverted, or placed under the head and before it, in lieu of the customary position at the nape of the neck and upright.

Cochins (White).—*Cock.*—1, J. & T. Weeks, Bootle. 2, J. Cowman, Whitehaven. 3, J. Sichel, Timperley. *hc*, E. Fearon, Whitehaven; R. S. S. Woodgate, Pembury, Tunbridge Wells; G. Shrimpton, Leighton Buzzard. *c*, J. Sichel.

Cochins (White).—*Hens or Pullets.*—1 and Cup, R. S. S. Woodgate. 2, J. Sichel. 3, E. Fearon. *hc*, J. Cowman; J. & T. Weeks; J. Mashiter, Ulverston.

Cochins (Buff, or any other colour).—*Cock.*—1 and Cup, H. Lacy, Hebden Bridge. 2, C. W. Brierley. 3, H. Lloyd, jun., Birmingham. *hc*, J. Sichel; J. and T. Weeks; J. K. Fowler, Aylesbury.

Cochins (Buff, or any other colour).—*Hens or Pullets.*—1, H. Lacy. 2, A. Bamford, Manchester. 3, J. Sichel. *hc*, H. Lloyd, jun. *c*, E. Fearon; T. Stretch, Ormskirk.

Brahma Pootra.—*Cock.*—1 and Cup, H. Lacy. 2, T. F. Ansdell, Cowley Mount, St. Helen's. 3, J. W. Brockbank, Kirk Santon. *hc*, J. Cowman; T. Raines; J. Frears, Whitehaven. *c*, T. Raines, Stirling.

Brahma Pootra.—*Hens or Pullets.*—1, T. F. Ansdell. 2, H. Lacy. 3, J. Cowman. *hc*, E. Fearon; J. W. Brockbank; E. Leech, Rochdale. *c*, J. Sichel.

Dorkings (Silver-Grey).—*Cock.*—1, J. A. Dickinson, Sowerby. 2, T. Raines. 3, R. D. Holt, Orreat Head. *hc*, W. Jackson, Bolton-le-Sands; J. J. Waller; T. Raines.

Dorkings (Silver-Grey).—*Hens or Pullets.*—1, R. D. Holt. 2 and *hc*, W. W. Ruttledge, Kendal. 3, J. Cunningham, Dalbeattie. *c*, W. Jackson.

Dorkings (Dark).—*Cock.*—1 and Cup, L. Patton, Taunton. 2, J. White, Northallerton. 3, R. D. Holt. *vhc*, T. L. Jackson, Cockermouth. *hc*, Gunson and Jefferson, Whitehaven; J. White; T. Raines. *c*, L. Patton.

Dorkings (Dark).—*Hens or Pullets.*—1, L. Patton. 2, W. W. Ruttledge. 3, W. H. King. *hc*, Gunson & Jefferson; J. White; G. A. Perrin, Loughlinstown; J. Fotheringham, Dalbeattie.

Spanish.—1 and Cup, C. W. Brierley, Middleton. 2, H. Beldon, Bingley. 3, E. Jackson, Finchfield, Wolverhampton. *hc*, J. Walker, Standeford, Wolverhampton. *c*, J. Thresh, Bradford.

French Fowl.—1 and 2, J. Sichel. 3, W. R. Park, Melrose. *hc*, J. K. Fowler.

Game (Black or Brown Red).—*Cock.*—1 and Cup, J. Fletcher, Stoneclough. 2, H. M. Julian. 3, J. Fletcher. *hc*, J. Oldfield, Little Horton; Morris & Woods, Accrington; G. F. Ward, Wenbury; G. Bell, Wigton; S. Beighton, Farnsfield; C. W. Brierley; J. Fletcher; J. W. Brockbank, Kirk Santon; J. Bowness, Newchurch; T. Mason, Green Ayre, Lancaster; J. H. Wilson, St. Bees. *c*, Bellingham & Gill, Burnley; E. Aykroyd, Eccleshill.

Game (Black or Brown Red).—*Cockerel.*—1 and Cup, W. Barnes, Blennerhasset. 2, T. Mason. 3, R. B. Hndson, Dalton-in-Furness. *hc*, J. Bauthmell, Kendal; G. F. Ward; G. C. Wilson, Milnthorpe; C. W. Brierley; J. Brough. *c*, J. Fletcher.

Game (Any other variety).—*Cock or Cockerel.*—1, J. Fletcher (Duckwing). 2, C. W. Brierley. 3, H. M. Julian. *hc*, Morris & Woods (Duckwing); C. W. Brierley; J. Brough, Carlisle; J. Fletcher (Duckwing).

Game (Any variety).—*Hen.*—1 and Cup, H. M. Julian. 2, J. H. Wilson. 3, J. Fletcher. *hc*, C. W. Brierley (2); J. Fletcher. *c*, G. C. Wilson.

Game (Any variety).—*Pullet.*—1, E. Aykroyd. 2, J. Fletcher. 3, J. Hodgson, Bradford. *hc*, W. Barnes; G. F. Ward; C. W. Brierley; J. H. Wilson; W. Boulton, Dalton-in-Furness; J. Fletcher; T. Mason. *c*, A. Haslam, Hindley (Brown Red); T. Dowell (Black Red); W. Grice, Carnforth.

Hamburghs (Golden-spangled).—1 and Cup, J. Rollinson. 2, H. Beldon. 3, D. Lord, Stacksteads, Manchester. *hc*, J. Backley, Ashton-under-Lyne; J. Rollinson, Lindley. *c*, R. H. Ashton, Mottram; T. Stuart, Staveley.

Hamburghs (Silver-spangled).—1, H. Beldon. 2, D. Lord. 3 and *hc*, Ashton and Booth, Mottram.

Hamburghs (Golden-pencilled).—1, J. Rollinson. 2, H. Beldon. 3, D. Lord. *hc*, Miss H. Weeks; J. Walker; H. Beldon; W. R. Park.

Hamburghs (Silver-pencilled).—1, H. Beldon. 2, D. Lord. 3, H. Beldon. *hc*, J. W. Edge, Birmingham. *c*, W. M. Mann, Kendal.

Any other Variety except Bantams.—1 and 3, H. Beldon (Polands). 2, D. Lord. *hc*, J. Bell (White Dorkings).

Selling Class.—1, A. Mollons, Standeford. 2, J. Collins, Whitehaven (White Cochins). 3, E. Fearon. 4 and 5, J. Sichel. *hc*, E. Fearon (4); H. Lloyd, jun.; J. W. Will, Errol (2); T. J. Harrison, Kendal (Black Spanish); J. Campbell, Langholm (Black Red); Gunson & Jefferson, Whitehaven (3); S. Lord; J. Cunningham (Silver-Grey); S. Bell (Dark Dorkings); J. H. Wilson (Game); H. Beldon; J. White (Dorkings); J. Fotheringham (Dorkings); T. Thompson; T. Mason. *c*, J. Pickles, Mytholmroyd (Black Red Game) Gunson and Jefferson; J. H. Wilson (Dorkings); C. McClellan, Egremont (Dorkings); J. W. Brockbank; J. Moore (White Cochins); S. Bell (Dorkings).

Game Bantams (Black Reds).—*Cock.*—1, T. Sharples, Rawtenstall. 2, J. Barlow, Monkwearmouth. 3, R. Youll, Sunderland. *hc*, H. H. Thompson, Sunderland; W. Dabell, Southwell; W. Rogers, Sunderland (2); Capt. T. Wetherall, Kettering; G. Maples, Wavertree, Liverpool. *c*, J. Oldfield; T. Barker; H. J. Nicholson.

Game Bantams (Black Reds).—*Hens or Pullets.*—1 and Cup, J. Rollinson. 2, J. R. Robinson, Garstang. 3, T. Sharples, Garstang. *hc*, Master A. Frew.

Game Bantams (Any other variety except Black Reds).—1, T. Sharples. 2, H. J. Nicholson. 3, W. Adams (Brown Red). *hc*, G. Todd, Sunderland; J. R. Robinson.

Bantams (Any other variety).—1, J. Sichel (Pekin). 2, M. Leno (Laced). 3, H. Beldon. *hc*, R. H. Ashton; Capt. T. Wetherall; M. Leno, Markyate Street (Laced); H. Beldon. *c*, R. Frew, Kirkcaldy.

Ducks (Aylesbury).—1, E. Leech, Rochdale. 2 and 3, H. Jones. *hc*, E. Fearon; H. Jones, Ulverston.

Ducks (Rouen).—1, A. Dickinson, Whitehaven. 2, R. Gladstone, jun., Broadgreen, Liverpool. 3, L. Patton. *hc*, A. Dickinson; L. Patton (2); S. H. Stott, Healey, Rochdale. *c*, A. Stuart.

Ducks (Any variety).—1 and 3, H. B. Smith. 2, M. Leno (Mandarin). *hc*. W. Binns, Leeds (Mandarin); W. H. King, Rochdale (Call); M. Leno (Whistling); S. H. Stott.

Selling Class (Ducks, Geese, and Turkeys).—1, E. Fearon (Aylesbury). 2, J. W. Brockbank. 3, J. Richardson, Lowca. *hc*, E. Fearon (Aylesbury); S. H. Stott; E. Leech. *c*, Gunson & Jefferson; H. B. Smith; E. G. Jones.

Turkeys (Any variety).—1, G. F. Statter, Carlisle. 2, E. Leech. *hc*, Miss Borthwick, Flimby (Cambridge).

Geese (Any variety).—1, E. Leech. 2 and *c*, G. F. Statter (Toulouse).

PIGEONS.

Carriers.—1 and Cup, J. C. Ord, Pimlico. 2, H. Yardley, Birmingham. *hc*, S. Holroyd, Lees; J. & W. Towerson, Egremont. *c*, J. Thompson.

Pouters.—1, Mrs. Ladd, Calne (White). 2, W. B. Van Haansbergen, Newcastle. *c*, W. B. Van Haansbergen; Mrs. Ladd; J. & W. Towerson.

Tumblers (Almond).—1, J. Fielding, jun. 2, W. B. Van Haansbergen.

Tumblers (Any other variety).—1, J. Fielding, jun. 2, J. & W. Towerson. *hc*, W. B. Van Haansbergen (Yellow). *c*, W. B. Van Haansbergen (Kite); G. South, London (Black Beards).

Jacobins.—1, R. Thompson, Penrith. 2, W. B. Van Haansbergen. *hc*, W. B. Van Haansbergen; J. Thompson. *c*, J. Thompson; J. & W. Towerson.

Trumpeters.—1, J. & W. Towerson. 2, W. B. Van Haansbergen. *hc*, W. B. Van Haansbergen; G. F. Ward.

Barbs.—1, W. B. Van Haansbergen. 2, J. Fielding, jun. *hc*, W. Jackson; H. Yardley.

Turbits.—1, G. South. 2, J. W. Edge. *hc*, R. Thompson; H. Yardley; J. Fielding, jun.; J. & W. Towerson.

Owls.—1 and 2, J. Fielding, jun. *hc*, J. Armstrong, Workington (2); J. & W. Towerson. *c*, R. Woods.

Fantails.—1 and 2, H. Yardley. *hc*, W. B. Van Haansbergen; A. Crosbie, Melrose.

Dragoons.—1 and 2, G. South. *hc*, G. South (2); J. Thompson.

Any other Variety.—1, H. Yardley. Extra 1, A. Prosche. Dresden. 2, R. Kitchen, Whitehaven (Archangels). *hc*, W. B. Van Haansbergen (Magpies); J. Thompson; J. & W. Towerson (Porcelains); A. Crosbie (Letz). *c*, W. B. Van Haansbergen (Nuns); G. South (Persians).

Selling Class.—1, R. G. Teebay, Beacough, Ormskirk. 2, W. Kitchin. *hc*, S. Holroyd (2); J. Thompson; H. Yowart, Whitehaven (Antwerps); W. Jackson (Barbs); J. & W. Towerson; J. Kemp, Haslingden. *c*, W. B. Van Haansbergen (Almonds); S. H. Jackson (Runts); J. Thompson; J. Kemp.

CANARIES.

Belgian (Yellow).—1 and 2, W. Jones, Ulverston. *hc*, J. N. Harrison, Belper. *c*, W. Robinson, Workington.

Belgian (Buff).—1, R. Carr, Carlisle. 2, J. Brown, jun., Penrith. *hc*, J. N. Harrison. *c*, W. Jones.

Mules (Yellow).—1, Stevens & Leek, Middlesborough. 2, W. Robinson. *hc*, J. N. Harrison.

Mules (Buff).—1, R. Carr. 2, Stevens & Leek. *hc*, W. Robinson. *c*, F. Hawman.

Piebald (Yellow or Buff).—1, Stevens & Leek. 2, R. Hawman, Middlesborough. *hc*, W. Jones. *c*, W. Robinson.

Lizards (Gold or Silver-spangled).—1, J. Taylor, Middlesborough. 2, J. N. Harrison.

Judges.—Game, Game Bantams, French Fowl, and Variety Classes: Mr. E. Hewitt, Sparkbrook, Birmingham. Cochins, Brahmas, Dorkings, Spanish, Hamburghs, Ducks, Geese, Turkeys, and Selling Class: Mr. R. Teebay, Fulwood, Preston. Pigeons: Messrs. E. Hewitt & R. Teebay. Canaries: Mr. A. Benson, Whitehaven.

PIGEONS GOING LIGHT.

I trust a few remarks, founded on facts that came under my notice during the examination of upwards of twenty birds from various lofts, may be acceptable to your readers. It is not my intention to trespass on your space by giving particulars of the various experiments made, but simply to state it is my belief that worms are in most cases the cause of so many valuable birds wasting and dying, also that the malady is contagious. A short time since I went to see the stock of an old fancier—crouched in a pen was a good-bred Tumbler in the last stage of the so-called consumption. I told the owner what the bird was suffering from; he laughed at the idea. The bird was examined after death to convince him, and it contained upwards of one hundred worms, some 2 inches in length.—J. Philpott.

Allow me to state in reply to Mr. H. Allsop's very useful hints, that I always use cod-liver oil for my Pigeons when going light. It is done up in "capsules," which prevent the feathers becoming greased. The birds take the capsules very easily; they are to be procured at any London chemist's for a halfpenny each, or 1*s*. per box of thirty-six. Castor-oil capsules are also to be procured, and at the same price. They should be put in cold water for about half a minute before giving them to the birds; being rather large they slip down better that way. One is quite enough for a dose, two in extreme cases.—A. Meersch.

Birmingham Poultry Show.—The annual meeting to revise the prize lists for the present year is fixed for Thursday, 22nd inst. The Secretary will be happy to receive and place before the Council any suggestions for improvements, or any offers of special prizes either in the cattle, root, or poultry department. The direction to the Secretary is Mr. John B. Lythall, 39, New Street, Birmingham.

LARGE versus SMALL HIVES.

I should like to call the attention of subscribers who have read the interesting articles on this topic by "Carolus" (page 479, vol. xx.), and "J. Lowe" (page 520), to a suggestion of mine in vol. xviii., page 237, headed "Dummy Frames."

I think my plan would suit all parties; they could have hives of large or small capacities at will, according to the season or locality. Your opinion was, that the whole ten combs were required for breeding purposes, but my experience of ten Woodbury hives during three seasons does not correspond; I have never found combs 1 and 10 containing brood.

I had an excellent opportunity of testing the fact this summer. Most of my strong supered stocks swarmed—some more than once; and when cutting out the queen cells before replacing the swarms, I particularly noticed that the two outside combs were not being used for breeding, but most of them were quite filled with sealed honey. I thus lost a quantity of honey which I could have sold for 1*s*. 6*d*. per lb., and have replaced with syrup at a cost of 3*d*. per lb., and at the same time profited by the advantages pointed out in the article. Last winter I lost three of my best stocks during that long frost through starvation; although each had nearly 12 lbs. of honey left in the side combs, that in the centre ones had been all consumed.

If I had carried out my plan the autumn-given syrup would have been deposited in the middle combs, and my stock have been saved. I should much esteem your reconsideration of this matter, and Mr. Lowe and "B. & W." perhaps would also favour me with their opinion.

The question is, Would the bees in a supered colony prefer to breed or to store honey in the end combs of the stock hive?

I should like to mention a curious incident that happened to me last season. I had in my apiary a colony of black bees, the queen of which had been killed for the purpose of adding a Ligurian that I had bred in a nucleus; upon opening it to take her out I found the bees ill-treating her. I dispersed them, and was about to take hold of her when she suddenly took wing, and I had the mortification of seeing my queen, after making a few circles in the air, fly clean away. I closed the nucleus and watched till dark, but saw nothing more of her. Judge, then, of my surprise when, upon opening my black stock the next afternoon, I found my queen comfortably settled in the very hive I had intended to join her to! Although there were ten others all in a row, she had selected the only one of the number that had no queen. Accident or sagacity, do you think?—THE BEE-HIVE.

OUR LETTER BOX.

BOOKS (*A. Atkins*).—Eaton's volume is out of print.

FRENCH AND GERMAN PERIODICALS (*M. Henderson*).—We know of none such as you mention.

DUNDEE POULTRY SHOW.—The address of Mr. J. Stuart, who won the first prize and cup for Brahma chickens, is Thistlebank, Helensburgh, not Scourlingburn, as printed last week.

DUBLIN PIGEON SHOW (*Reporter*).—We cannot admit replies to the statements in a contemporary. (*N. B. C. S.*).—The name cannot be given, nor can we insert any more notes on the subject.

PROMOTING LAYING (*J. S.*).—Your communication confirms us in our old opinion, that good moderate feeding is all that is necessary for laying fowls. The green food has much to do with it. We are very infants in the use of it compared with our neighbours on the Continent. We grow backward turnips on purpose to give the greens to our poultry and Pheasants, and they like it in preference to anything.

ROOSTS FOR BRAHMAS (*A. B. G.*).—Our Brahma perches are made of firpoles 14 inches in diameter, sawn in half, and fastened the round side uppermost. They are 20 inches from the ground. Most of the fowls roost on them, but some prefer the ground, and to prevent that we place some old roots of trees in the house. The only objection to these last is, they take considerable time to clean every morning. The birds prefer perches with the bark on them.

MOVING A BROODY HEN (*F. T. W.*).—There is always difficulty in moving a broody hen unless much care is taken. She should be moved in a very low dark basket with plenty of soft straw, that she may keep very warm. Put her in a low basket with 4 or 5 inches of soft straw under her, place her on some false eggs, and tie her down. Put her in a dark place. If she intends to sit, she will when the basket is opened give unmistakeable tokens by grunting and growling; if she does not, she will at once fly out and leave her eggs. If she shows a disposition to sit close, leave her on the dumb eggs (worthless ones if you have no artificial ones) for a day or two, and then put good eggs under her, but she must be always tied-in.

ADDLED EGGS (*Grausendale*).—The cock being with the hens a week before the eggs were saved for sitting was long enough, but at the season of the year when the eggs were laid cocks are not attentive to all the hens, especially if the latter are numerous, and those you mention were certainly not impregnated. The Andalusians are quite distinct from the Minorcas. A slaty blue, with dark hackle in the cocks, is their colour. They are not uncommon.

WOUNDED COMB (*G. L. P.*).—If you intend to exhibit the bird you must not interfere with his comb, except to heal it, but you must keep it upright, which may be done with straps of adhesive plaister. If you have no intention of exhibiting you may remove the piece that hangs down, but we should try to save it.

BRAHMA HEN'S ABDOMEN SWOLLEN (*J. W. T.*).—Your poultry diet will make the fowls fat, and induce constipation, especially as you do not mention green food. Very often the appearance you mention is caused by hard fæcal matter. Cut away the feathers to which it adheres, or soften them with hot water, and give her a dessert-spoonful of castor oil. If it be a tumour on the outside the hen's body, it can be easily removed if it be an ordinary one. Make a cruciform opening the size of the tumour, and press it at the base, a round hard cheesy substance will be expelled. Wash the wound with warm water, draw the lips of the wound together with a thread, and rub some spermaceti ointment on it. It will soon heal. Discontinue the potatoes and pollard and the wheat. Give plenty of green meat, and some large sods of growing grass, cut with plenty of earth to them.

DUCK EGG ABNORMAL (*J. N.*).—The egg you mention, weighing 6¼ ozs., with a perfect egg within it, is a curiosity. The double-yolked egg laid afterwards is proof that for the time the laying organs are out of order.

FEATHER-EATING BRAHMAS (*S. S.*).—Some breeds are addicted to the abominable practice you complain of, but we have never found it in Brahmas. Discontinue the beer and the kitchen scraps. On the days of confinement give green food plentifully, and watch for the worst offender; remove him or her. You will be unable to stop it while the bare spots remain, especially if they are raw; and as Brahmas do not suffer from confinement, we advise you to take all the birds that have suffered and shut them up singly till the feathers are grown. They have done it for lack of something, and in a short time they will forget it.

DARK AND LIGHT BRAHMAS (*Alwirdus*).—We are not aware of any difference in the laying of Light and Dark Brahmas, or in the size of the eggs. We believe some of the imported Light Brahmas are heavier than the Dark ones we see commonly. We cannot do better than refer you to our advertising columns, advising you to choose from the names that are most commonly found among the successful exhibitors in the classes you mention.

BRAHMA STOCK (*Just Commencing*).—There is no objection to your Brahma cock having a speckled breast. The best birds we ever had had them. The vulture-hocked hen is a much more serious matter, and there is every probability her chicks will have the same fault. She would, probably, be disqualified in competition with others not vulture-hocked.

BARNS AT WOLVERHAMPTON.—"*Curious*" wishes to know to whom the first-prize pen belonged.

CANARIES (*R. F.*).—Write to W. A. Blakston, Esq., 22, Norfolk Street, Sunderland.

PRAIRIE BIRDS (*A Constant Reader*).—We believe the idea that they are sometimes poisonous on account of a herb they have eaten, is totally groundless.

LIME WATER (*Three-months Subscriber*).—It is not poisonous. If it were, we should have said so, as we did of the corrosive sublimate.

MILKING MACHINE (*Hampshire*).—We know of no one who uses any other machine than the dairyman's or dairymaid's hand.

METEOROLOGICAL OBSERVATIONS,

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude 111 feet.

DATE. 1872. Feb.	A.M.					IN THE DAY.				Rain.
	Barometer reduced and Sea level.	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 ft.	Shade Temperature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass	
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 7	29.977	45 9		N.W.	44.4	55.5	43.2	89.2	29 8	0.170
Th. 8	29.954	48 2	47 4	S.	44.8	58.9	43.9	77.1	38.2	—
Fri. 9	29.967	40.4	40.4	N.	44 1	55.2	35.4	79.6	30.6	—
Sat. 10	29.949	46.2	46.2	S.E.	43.7	57.0	39.8	72.4	39.8	—
Sun. 11	29.825	45.3	44.2	S.	43.9	51.8	41.0	62.0	36.5	—
Mo. 12	29.663	41.5	39.2	S.	44.1	50.0	37.0	75.2	32.5	0.030
Tu. 13	29.786	42.8	42 6	S.E.	43.5	53.5	38.2	84.2	31.0	0.090
Means	29.875	44 8	43.4		44 1	53.6	39.8	77.1	35.5	0.290

REMARKS.

7th.—Bright and dry in the morning, and so continued till after 5 P.M.; at 6.45 rain commenced, and was followed by a wet evening.

8th.—Rather damp morning, but beautiful day, dry and warm with fine sunset, though rather hazy afterwards.

9th.—A very fine day, dry, bright, and warm.

10th.—Fine all day, pleasant air, and starlit night.

11th.—Rather dull in morning, fair all day, but not quite as bright as the preceding day.

12th.—Fine morning, but getting more and more dull after noon; rain between 7 and 8 P.M., which continued for some time.

13th.—Dull in early morning, but clearing off before 9 A.M., bright sunny day, but rather cold; rain after midnight.

With generally finer weather, the range of temperature has naturally considerably exceeded that of previous weeks; the mean range in shade has increased from 8.9° to 14.0°, and that of the exposed thermometers from 23.6° to 41.6°.—G. J. SYMONS.

COVENT GARDEN MARKET.—FEBRUARY 14.

A STEADY regular demand has characterised the transactions of the week, and a continuous supply enables all parties to be served. Continental supplies are well kept up and are very useful; from the Azores there has been a good freight of Pines again, and some good Bananas. Hothouse Grapes comprise Gros Guillaume, Black Hamburgh, Lady Downe's, and Trebbiano, the latter, however, not first-rate, and unsaleable from its brown colour. First-class Regent Potatoes obtain a better price; in all other kinds the trade is heavy.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples ½ sieve	2 0	to 4 0	Melons each	0 0	to 0 0
Apricots doz.	0 0	0 0	Mulberries lb.	0 0	0 0
Cherries lb.	0 0	0 0	Nectarines doz.	0 0	0 0
Chestnuts bushel	10 0	20 0	Oranges ₱100	4 0	10 0
Currants ½ sieve	0 0	0 0	Pears, kitchen doz.	2 0	4 0
Black do.	0 0	0 0	dessert doz.	3 0	8 0
Figs doz.	0 0	0 0	Pine Apples lb.	6 0	10 0
Filberts lb.	0 6	1 0	Quinces doz.	0 0	0 0
Cobs	0 6	1 0	Raspberries lb.	0 0	0 0
Grapes, Hothouse lb.	5 0	10 0	Strawberries lb.	0 0	0 0
Gooseberries quart	0 0	0 0	Walnuts bushel	10 0	25 0
Lemons ₱100	7 0	10 0	ditto ₱100	1 0	2 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes doz.	4 0	to 6 0	Leeks bunch	0 3	to 0 0
Asparagus ₱100.	5 0	8 0	Lettuce doz.	1 0	2 6
Beans, Kidney per 100	2 0	6 0	Mushrooms pottle	1 0	2 0
Broad bushel	0 0	0 0	Mustard & Cress punnet	0 2	0 0
Beet, Red doz.	1 0	3 0	Onions bushel	2 0	4 0
Broccoli bundle	0 9	1 6	pickling quart	0 6	0 0
Brussels Sprouts ½ sieve	1 6	3 0	Parsley per doz. bunches	3 0	4 0
Cabbage doz.	1 0	1 6	Parsnips doz.	0 9	1 8
Capsicums ₱100	0 0	0 0	Peas quart	0 0	0 0
Carrots bunch	0 6	0 0	Potatoes bushel	2 0	3 0
Cauliflower do.	2 0	6 0	Kidney do.	3 0	5 6
Celery bundle	1 6	2 0	Radishes.. doz. bunches	0 6	1 0
Coleworts.. doz. bunches	2 0	4 0	Rhubarb bundle	0 6	1 0
Cucumbers each	1 0	3 0	Savoys doz.	0 3	1 0
pickling doz.	0 0	0 0	Sea-kale basket	1 0	2 0
Endive doz.	2 0	0 0	Shallots lb.	0 4	0 9
Fennel bunch	0 3	0 0	Spinach bushel	3 0	4 0
Garlic lb.	0 3	0 0	Tomatoes doz.	0 0	0 0
Herbs bunch	0 3	0 0	Turnips bunch	0 3	0 6
Horseradish bundle	3 0	4 0	Vegetable Marrows..doz.	0 0	0 0

WEEKLY CALENDAR.

Day of Month	Day of Week.	FEBRUARY 22—28, 1872.	Average Temperature near London.			Rain in 45 years.	Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	Days.	m. h.	m. h.	m. h.	m. h.	Days.	m. s.	
22	Th	Meeting of Royal Society, 8.30 P.M.	46.8	31.9	39.3	19	4 af 7	25 af 5	7 af 3	39 af 6	13	13 48	53
23	F		47.4	31.5	39.4	14	2 7	27 5	16 4	7 7	14	13 40	54
24	S		47.1	32.8	39.9	20	0 7	29 5	29 5	31 7	○	13 31	55
25	Sun	2 Sunday in Lent.	47.7	32.7	40.2	22	57 6	30 5	42 6	47 7	16	13 22	56
26	M	Meeting of Royal Geographical Society, 8.30 P.M.	47.2	33.6	40.4	23	55 6	32 5	55 7	4 8	17	13 12	57
27	Tu		47.7	33.5	40.6	20	53 6	33 5	9 9	20 8	18	13 1	58
28	W	Meeting of Society of Arts, 8 P.M.	49.1	32.8	40.9	15	52 6	35 5	27 10	35 8	19	12 51	59

From observations taken near London during forty-three years, the average day temperature of the week is 47.6°; and its night temperature 32.7°. The greatest heat was 62°, on the 25th, 1868; and the lowest cold 18°, on the 24th, 1860. The greatest fall of rain was 0.92 inch.

NOTES UPON FERNS.—No. 1.

OUR correspondent "Pteris" has, in a letter to us upon Fern-culture for amateurs, opened up a very wide subject. His remarks in it are good, and the subject is a popular one; but to carry out what he wishes would take up immense space; indeed, the subject is so vast that a volume might be written upon it without exhausting it. Briefly, however, as the details of the various parts of these plants must of necessity be treated upon in the pages of a Journal like ours, I shall, nevertheless, endeavour to deal with the subject so that the amateur may take up the study and prosecute it, even in a strictly scientific manner, should there be occasion for so doing.

I may state here, to prevent my being suspected of plagiarism, that many of the ideas and descriptions will be found to coincide—nay, may even be couched in very similar terms to those of Mr. J. Smith in his various writings upon Ferns. But as I acquired my knowledge of these elegant plants under the tuition of that eminent pteridologist, and had the pleasure of assisting him to some extent in his last work upon Ferns,* and am a staunch believer in his views, it will be readily understood why there is a similarity. I consider the characters obtained from habit of growth, in conjunction with the venation and the disposition of the sori, as more likely to lead to just conclusions for purposes of classification than it is possible for anyone to obtain by adopting only one of these organs as a guide. A study of the living plant, in my estimation, is of vast importance in determining both generic and specific distinctions. It is the custom of some of our eminent living botanists to speak slightingly of those who do not confine their studies to herbarium specimens, calling them mere garden botanists; but I am aware of several cases in which those systematic botanists who believe only in dried specimens would have committed grievous errors, and published them to the world too, if they had not been put right by "mere garden botanists." Do not think that I depreciate herbarium specimens; on the contrary, I value them highly, but I consider they should be used conjointly with living plants upon all possible occasions.

To resume my subject, however, it is necessary to come back to the Ferns, of some of which none of my readers will be entirely ignorant. The immense number of new species which have been introduced to Europe during the past thirty years is sufficient evidence of the general favour in which these plants are held. Popular as they have become, our correspondent "Pteris" assures us that there yet remains amongst amateurs a great lack of knowledge of their general structure, their various organs, and the relation of these organs to each other, as well as of the wants and treatment of the plants. It is to supply this want, therefore, that these lines are written.

If a knowledge of the name and native habitat of any plant, together with its medicinal or economic properties, fail not to give it additional interest in the sight of the owner, how much, then, must that interest be increased when the peculiarity of each particular organ is well understood? What a great assistance this is also to amateur cultivators who have not the command of plant houses of varied temperatures, in enabling them to experimentalise with their pets until the proper situation is found to suit their requirements. That this knowledge is not absolutely necessary I admit, for I have known several men who, without being acquainted with either the name or native country, have yet been skilful cultivators, yet the fact that their success would have been more sure, and the results more rapidly secured, had the natural surroundings of any strange plant been familiar to them, cannot be denied. Many amateurs shrink from the study of the natural history of their plants, from the supposition that the technical phrases are difficult to acquire and understand. This, however, is rather an imaginary than a real difficulty, as I have frequently found the very person who complains most of the hard terms employed by botanists converses most glibly upon the beauty of Hyacinths, Camellias, Fuchsias, Geraniums, and Dahlias, entirely forgetting that these are foreign words which have become naturalised by frequent use. Though I do not contend that pure systematic botany is essential to a good education, or likely to interest or be of great service to the public generally, yet a knowledge of the properties and organs of plants, which may be designated "domestic botany," tends to give much pure enjoyment, elevates the mind, and enables us all better to fulfil our duties in life.

With these preliminary remarks I shall leave the generalities, and confine my remarks specially to the subject of Ferns, of which our correspondent "Pteris" desires to obtain for himself and friends some information.—Experto Crede.

* Ferns, British and Foreign, by John Smith. London: Hardwicke.

CULTURE OF THE IXORA.

In many respects none of our stove plants surpasses or even equals the Ixora. When properly managed it is rarely without a few trusses of bloom, whatever the time of year. It is of easy culture where the necessary conveniences exist, and will amply repay any attention it may receive. It is rarely we see well-grown specimens of these beautiful plants amongst amateurs, though some of our well-known exhibitors show them in perfection; but taking amateurs generally, the plant is almost unknown to many of them. And why is it so? The same old tale: "I bought a plant and have lost it; I will not buy another, we cannot grow it." These are expressions I have often heard used in speaking of many of our beautiful and free-growing stove and other plants, and yet failure in their culture is not the fault of the plants but of the grower.

The Ixora is of easy culture, provided there is a proper house to grow it in; if such does not exist it is useless to make the attempt; but give it a little careful attention, together with a well-heated house, and I know of no other plant that will afford more satisfaction. Perhaps a few

hints will be acceptable to some who have hitherto been unsuccessful.

Ixoras are evergreen flowering shrubs, and therefore do not require to be dried-off in winter or to be allowed a period of rest. They delight in a moist warm atmosphere, and in abundance of bright sunshine; in fact, exposing the plant to the rays of the sun is highly necessary, in order that the growth may be matured and the buds set. The Ixoras will grow and bloom profusely in winter, as well as in summer, although it is not advisable to force them much in winter, especially if they are required for exhibition. If, however, they are kept in a moist and warm atmosphere they will produce a quantity of bloom, which is very cheering in the dreary months of winter, and whether flowering in the summer or winter, their beautiful trusses are always acceptable.

Before proceeding further I would again say, Do not attempt to cultivate Ixoras unless you have a stove or hot-water pit where they can have plenty of heat and atmospheric moisture, and where you can apply the syringe freely. I know of no other plant that delights more in being freely and often syringed, and frequent syringing will prevent the occurrence of those enemies by which the Ixoras are most liable to be attacked—viz., mealy bug, green fly, and brown scale. I do not believe any blight-composition is so effective as clean water, a syringe, and a heart to use it. The neglect of these has caused the untimely end of many a beautiful plant, and I cannot impress too strongly on the minds of amateurs and gardeners the necessity of frequently using the syringe and clean water. If they did so they would not require half the blight-compositions that are now prepared, many of which injure the plants more than the insects.

Let us now suppose we have just purchased a healthy young plant of an Ixora free from insects, and in a thriving state. Give directions to the person you purchase it from that it shall be warmly and securely packed, so that it may not be injured in transport. When it arrives place it in the stove, say in a temperature of 65° to 75°, and see that it is regularly watered and syringed with water of the same temperature as the house. It is essential—to say nothing of the convenience—to have a tank in every stove, so that the water used both in syringing and watering may be of the same temperature as the house. In a week or two the plant, if all go well, will begin to show signs of fresh growth, and should, consequently, be examined to see whether it requires shifting into a larger pot. If such is necessary prepare the soil for potting. I have found the best mixture to be equal parts of fresh turfy peat and half-decayed turfy yellow loam, with a free admixture of sharp silver sand, adding a few lumps of charcoal about the size of a walnut.

Prepare the pot, placing three or four large crocks at the bottom, then fill to a fourth part of the pot's depth with smaller crocks, and place a layer of the roughest of the soil over these. Turn the plant out of its pot, remove all the old crocks from the bottom of the ball, and if the roots are matted round the ball loosen them very carefully, so that you will thus in some degree break the ball, for if this were left unbroken the plant might suffer in consequence of the water being unable to pass through it. Place the plant in the middle of the pot, and in such a position that the old ball will be about an inch below the rim; fill-in all round with the compost, give the pot a few smart taps on the potting-board, and if the plant is a good-sized specimen use a rammer in the shape of a thick stick a foot long, so that the soil may be firmly and evenly pressed-in. Finish-off the top neatly and evenly. All being now completed, replace the plant in the stove; and if the foregoing hints are attended to I have every reason to think that success will be certain.

I may add that for established plants I have often found a little manure water very beneficial, and, when I can obtain them, I use cow-droppings diluted in water, and used in a clear state not more than once a-week.—T. B.

FORCING VEGETABLES.—No. 6.

RHUBARB, SEA-KALE, AND MUSHROOMS.

As the two first-named vegetables have been so often treated of by Mr. Fish and other writers at different times, I feel that it is unnecessary for me to go into the details of their treatment. I may, however, mention that although both Sea-kale and Rhubarb are very successfully forced in more ways than one, I still advise the old plan of forcing in the open ground as being the best both for produce and flavour. In that way there is no mutilation of the roots, nor are the plants checked or robbed of any of their stored-up juices; and if gradually forced with a mild heat, as such vegetables always should be, they will continue to produce a good second, and even a third crop, without damaging to any great extent their power of producing a successful one by forcing again the following year.

But where there is a scarcity of heating material, such as dung and leaves, then the plan of taking up the roots and forcing them in any artificially heated structure may be resorted to with good success. In making-up my out-door beds I avoid using the manure too fresh, and if possible I mix half leaves with it to prevent the produce from tasting of the manure. In the case of Rhubarb and Asparagus I find that which is sent to table unblanched is much preferred to that which is sent blanched, and is said to be of a much better flavour. This I do not doubt, and it is certainly better in appearance when it has a more natural colour. To very many growers, however, economy in space and also in forcing is absolutely necessary. To such the method of taking up the roots and forcing them in close quarters is commendable, the way of doing which may be found in some of the back numbers of this Journal.

Coming now to Mushroom-growing, we have a more delicate and important subject, of which I purpose treating in detail. I do not suppose I shall state anything but what most gardeners of good experience already know. Mushroom-growing, however, is very much on the increase, and it is for the many persons who do not know how to grow Mushrooms that the following directions are given.

In order to be better understood, we will suppose that Mushrooms are required for table the whole year round, when it will be proper to commence in the month of August, at the time that out-door cultivation ceases. My plan is to first give the Mushroom house a thorough cleansing by clearing out all rubbish, washing the woodwork, and whitewashing the walls, by searching every hole or crevice for woodlice, crickets, and other enemies to the Mushroom, and by fumigating with tobacco and two or three times with sulphur, in order to destroy any winged insect that is likely to prove destructive. While this is being done, collect all the fresh horse-droppings that are to be had from the stables until enough are procured for the size of the bed. Place them in an open shed or under some protection from wet, which should not in any case be allowed to reach them, turn the manure frequently, and mix it well. When the strongest heat has abated I add a third of leaves partly decayed, and after mixing these well with the dung I consider it is ready to form into a bed. If the bed is to be formed on the ground floor I first lay just enough rough material to keep the manure clear of the cold earth, then put on a layer 6 inches thick over the bed, and either beat it well with a mallet, or even tread it if the manure will allow of it. Afterwards I add another layer or two, and each time repeat the operation of treading or beating down, so as to reduce the bed to a solid mass of the requisite thickness, which with me is generally from 1 foot to 14 inches. After this insert two or three trial sticks into the bed, and examine them frequently.

If all go on well, in five days or a week the bed will be fermenting mildly and regularly. When the proper heat has been secured uniformly over the bed, which can be very nearly ascertained by the trial sticks or else by a thermometer, which should indicate 80° F. or even 85° Fah., the bed may be prepared for spawning. First harden the surface by gently beating with the spade, and then make holes with a large wooden dibble about 3 inches square with a small but short point. These should be about 2 inches deep, 3 inches in diameter, and about 8 inches apart, and at regular intervals all over the bed. Allow the bed to remain in this state about two days, when the inside of the holes will be dry and in a fit state to receive the spawn, which may be put-in in one piece or several. Every hole should be filled with it, and have it well beaten into them afterwards. Cover the bed with a thin layer of the short dung, and make it firm and level. In about ten days or a fortnight examine the holes, and if the spawn has spread well into the material of the bed it may be earthed-over and finished-off.

I think it will be well to say a few words on earthing the beds, because on this their success or failure greatly depends. In the first place, the earth used should be a rich, moderately retentive maiden loam. If this be too light it will not remain firm on the bed, the Mushrooms will therefore be weak and of inferior quality, and the bed will cease bearing much earlier; but if the soil be heavy it can be made solid on the

bed, and the Mushrooms will be thicker in texture, finer, and the bed will produce a good crop and keep in bearing a long time. Again, the earth should neither be too dry nor too wet, but in such a state of moisture as to present a smooth surface when beaten down, and should be put on the bed about 2 inches thick.

I may mention that it is necessary to be very particular in the selection and working-up the materials for the growth of Mushrooms. It is one of the most curious and delicate operations in gardening, for if the bed becomes too hot after spawning, or if the materials are worked-up in too wet a state, the chances are that the spawn will be much injured if not entirely destroyed by these two extremes. If destroyed by heat, fresh spawn must be inserted when the material has declined to the proper temperature; but when too wet the bed must be worked up again, and fresh dry material added.

The after-treatment of the beds depends in a great measure upon the sort of house they are placed in. If there are hot-water pipes, the heating of which should be properly under control, it will not be always necessary to use a covering of hay or straw, which generally serves as a breeding place for woodlice and other pests. If used at all it need only be very thinly scattered over the bed, the principal object being to keep the surface of the bed in a uniform state of temperature and moisture. In a house of fair dimensions containing four or more beds at work very little heating by the hot-water pipes will be necessary, unless the weather is severe or the crop is required to be pushed forward. I prefer to grow my Mushrooms without fire heat, as they are then more fleshy, the bed lasts longer in bearing, and very little if any watering is required. This latter process should not be done without good judgment, as it is easy to overwater a bed and kill the spawn, or cool it so much that the bed will not recover its original temperature. Water should be applied in a warm state, and put on the bed by sprinklings with a fine syringe or a fine-rosed water-pot, with the greatest caution, or the little Mushrooms just peeping through will be injured so much as to turn brown and die away. The temperature of the house should be kept very regular, and not above 55° nor below 50°.

To keep up a proper succession of Mushrooms much must of course depend upon the demand, but as a rule it will be sufficient to spawn a new bed every month, as the beds will not all work alike. Some produce in five weeks, while another will be seven or even eight weeks before doing so; but as a good bed generally keeps in bearing a long time no blank will occur from such irregularity, unless the demand should be excessive at one particular time.

I think I have now given the principal details of the culture of Mushrooms in a regular Mushroom house, which is the best place to grow them in through the autumn and winter months. I have not, however, spoken of ventilation, the means of applying which are not always provided for. In a Mushroom house a little air at times is necessary, and if given with caution it will prove an additional help to regulate the temperature of the house. There should also be the means provided for excluding the light, as it appears more natural for Mushrooms to grow in the dark, though I am not sure that it is so. They have, however, a much better appearance, and some assert that they are better flavoured. A Mushroom house is one of the least expensive structures to have about a garden both in the working and construction; but there are, nevertheless, very many large gardens where Mushrooms are grown without one, though it is hardly fair to expect a gardener to keep up a supply without such a convenience. In this case the spawn is imperfectly worked; the beds, too, even if made up in proper succession, will often come into bearing all at one time, and frequently not at all.

I have intended the above remarks only to apply to the culture of Mushrooms through the autumn, winter, and spring months, the time when there is generally the greatest demand for them. For summer cultivation a Mushroom house is not so much needed, and I believe many gardeners, myself among the number, do not use it at that time, but grow their crops out of doors with little protection beyond a covering of rough littery straw or bracken to shelter the bed from excessively heavy rains, and to keep the temperature regular. The beds are made up in various forms, suited to the spot selected for them, but the ridge-shape is that usually employed, and from such beds Mushrooms are produced in great quantities.

There are very many ways of growing Mushrooms. My first attempt was by forming a bed in a small stokehole over the boiler with spawn of my own making. I have also grown them in large pots plunged in a bed of leaves in a forcing vinery. Some grow them in boxes, tubs, or even old hampers, and place them in a Peach house at work, or any other convenient place where artificial heat can be given them. Others make-up beds in cellars, which prove to be very good places generally, because of the ease with which an even temperature can be maintained. Others, again, who can spare a frame, insert spawn in a well-spent Melon or Cucumber bed with not very unsatisfactory results. Still, as I have before hinted, such modes are only chance methods of keeping up a supply, though they answer excellently where an unlimited and regular supply is not the main object, and to those who have no Mushroom house, or even the convenience of getting materials for good beds, such a system is to be recommended. It should be remembered, however, that in whatever way they are grown, the same care in selecting and working-up the materials, and also in the making-up and regulating the temperature of the beds, must be very strictly attended to, in which case success is pretty sure to follow.—Thomas Record.

VINE DISEASE AND VINE STOCKS.

(*Concluded from page* 142.)

Several years since I became convinced that the great cause of the decline of the Grape Vine in the United States, was referable to a large extent to some disease affecting the roots. I examined the roots of a number of varieties, and found that those varieties possessing thick succulent roots were the most unhealthy. Among those examined I found that the Concord had the finest and most wiry roots; and without recognising the disease, I resolved to use the Concord as a stock for both native and foreign varieties, and I think that in the autumn of 1868 I directed the attention of your readers to the advantages that would probably result from the use of the Concord as a stock for varieties of Vitis vinifera. Since the publication of the valuable articles on the Grape louse, I am more than ever convinced of the importance of working the more valuable varieties upon the Concord. If this pest has obtained a foothold in England, I fear its ravages will become general; for during one of its stages of existence, that of the Grape-leaf gall, it may be easily disseminated on the growing plants, and at certain periods when it possesses wings it may be wafted by the wind from place to place. Again, when the Vine is dormant the pest has its home on the roots, and it may be widely dispersed by the distribution of Vines from an infected nursery.

Observation having taught me that the want of success in Vine culture in this country was the sequence of some disease of the roots of the Vine, during the summer of 1868 I inarched a number of foreign varieties on Concord stocks growing in pots. In the spring of 1869 I planted a lean-to house 120 feet long with Vines upon their own roots, and with others inarched on Concord stocks. The first year (1869) they made a satisfactory growth; the second season (1870) all promised well until about the beginning of July, when I found that those on their own roots did not grow so rapidly as the worked Vines. My curiosity being excited I examined the roots of the Vines, and found those of the unworked varieties presented evident traces of disease, whilst those of the Concord stocks were perfectly healthy. Being familiar with the work of Mr. Thomson, I naturally referred the diseased condition to fungoid growths. But the conditions then found I can now refer to the actual cause—the Grape louse. The worked and unworked varieties were growing side by side. In the latter part of October a living fibre could not be found on a foreign Vine within 2 feet of the collar; and to test the condition of the larger roots I pulled up two of the Vines, and to my surprise found the large roots dead. A careful examination of the roots of the Concord stocks revealed the fact, that even the smallest fibres were healthy. From my vinery I proceeded to my garden, and examined the roots of Concord, Ives' Seedling, and Christine, all native, and supposed healthy and vigorous varieties. The roots of the first I found healthy, and those of the latter much diseased. I was anxious to find a reason, and recollected that the preceding spring I had manured my garden with manure containing a small quantity of sawdust, and jumped at the conclusion that the sawdust had produced fungoid disease.

Upon carefully examining the Vines in the vinery I found that the varieties that had suffered to the greatest extent were Hamburghs, Black Alicante, Royal Ascot, Golden Hamburgh, and Mrs. Pince's Muscat. During the summer of 1870, as I expected to change my place of residence, I propagated a number of foreign varieties by cuttings, and grew them in large

pots in the affected house, training the young Vines between the branches of those growing in the border. I likewise inarched a number of the diseased Vines on Concord stocks grown in 8-inch pots for that purpose. About the 1st of November the Vines on their own roots, as well as those on the Concord stocks, were placed on the floor of the vinery, and covered with a sufficient thickness of straw to effectually exclude the frost; the result was—I protected the Vine louse, and enabled the pest to prey upon my Vine roots during the winter. I disposed of my residence, and in March made preparations to pack up my valuable collection of pot-grown Vines and transport them to my new home. To my surprise and disgust, I found the roots of my Vines dead to the collar in almost every case where they were unworked. The worked Vines, on the contrary, were found to be healthy. Again fungoid disease came to my assistance, although the Vines had been grown in a compost consisting of decayed sods and half-inch bones.

On the 10th of last May I finished a span-roofed vinery 55 feet long, and planted it with the inarched Vines raised in 1870, and with a few Vines upon their own roots. The border was made of green turf cut 3 inches thick, to which were added half a ton of crushed bones and 200 lbs. of superphosphate of lime. Although the border was made of fresh sods, and the Vines were planted on the 10th of May, they made a satisfactory growth. The Vines on their own roots, except Golden Champion, made a growth of 13 to 20 feet; but most of the worked Vines crossed to the opposite side of the house, making a growth of 28 feet, the canes being large, firm, close-jointed, and ripened to the tip. When the canes reached the opposite side of the house they were stopped, or else I might have recorded the production of longer canes. Among some of the varieties making the strongest and longest growth on the Concord I may mention Golden Champion, Black Monukka, White Frontignan, Black Muscat of Alexandria, Gros Colman, Black Hamburgh, and Bowood Muscat.

Having noticed in the Journal that the Golden Champion failed in some places to make a satisfactory growth, I resolved upon trying an experiment with this variety. I planted a strong Vine of this variety upon its own roots, and two on Concord stocks grown in 8-inch pots. The Vine on its own roots made a growth of 5 feet, wood spongy and imperfectly ripened. One Vine on Concord produced a stout cane 25 feet long, close-jointed, solid, and ripened to the tip. The other Vine made two canes, one 23 feet long, and the other 28 feet long; the latter 3¼ inches in circumference, firm, close-jointed, and perfectly ripened to the last joint.

I may again direct the attention of your readers to the advantages of using a few of the American Grapes as stocks. They will grow luxuriantly in a soil where the European varieties would languish and die. They are almost exempt from the ravages of the Vine louse, and if attacked seem to sustain but little if any injury. They are injured to the same extent as foreign varieties by defective drainage. To insure a vigorous growth a limited extent of border will supply their wants. In this country the Concord is known as "the Grape for the Million," and it can be found growing with the utmost vigour in almost every portion of the United States, in all kinds of soil, and in every situation—in fact, it flourishes and annually produces large crops of fruit where other varieties would languish and die.

After having inarched a large number of varieties upon the Concord I have found but three varieties that seem to dislike the connection—the Wantage, Syrian, and Nice. As it is more than probable that you will be troubled with the Grape louse in England, I sincerely hope that some of your leading Grape-growers will test the value of the Concord as a stock. If disposed to experiment with it, I would only be too happy to forward cuttings of the Concord to any of your leading Grape-growers; and as you have my name and address, you are at liberty to communicate the same to those desirous of experimenting.

The researches of Mr. Riley during the summer of 1871 in France with regard to the introduction of the plant louse, render it almost conclusive that its introduction was the result of importing American Vines into France. Hence, I would advise your Grape-growers to be careful, and if they require Vines from the United States to be satisfied to receive cuttings, and allow rooted Vines to remain on this side of the Atlantic.

Having discovered my enemy, I shall make him a study, and at some future time I may have something more to say about the Vine louse, and my hobby the Concord Grape as a stock.—Al Fresco, *New Jersey, U.S.*

CHEMISTRY OF MANURE.

Though agreeing with "J. S. K." in the main, yet I cannot accept all the dicta of agricultural chemists as to manures. I know many of your readers will think I have a maggot in my brain on this subject, and I am only now in a measure repeating what I have already said. There is a degree of simplicity in valuing manures altogether by the nitrogen they contain, that seems to recommend itself on this score. Plants cannot absorb nitrogen from the air—plants require nitrogen for their growth—ammonia contains nitrogen—therefore nitrogenous manures are valuable in proportion to the ammonia or nitrogen they contain. There is something delightfully simple and easy in this mode of argument; but I must say, the more I see, the more I hear, and the more I read on the subject, the less convinced I am it is true. Granted (which is not yet proved, and difficult to prove), that plants cannot assimilate nitrogen from the air—but still granted, for the sake of argument, that they cannot—is it to be supposed that when growing plants on an average contain only about 2 per cent. of nitrogen and 50 per cent. of carbon, farmyard manure, for instance, is to be valued merely for the nitrogen when it is rich in carbon in a form easily assimilated, and rich, too, in all the mineral ingredients in a soluble, or rather in a minutely subdivided form, as they have already been absorbed and assimilated by other plants?

Is it not true, also, that all nitrogenous manures are easily decomposed? and may we not argue that just as food which is most easily digested forms the most useful and necessary food for man, so those manures which are most easily decomposed form the most necessary food for plants? Ammonia is an alkali, a powerful solvent for all forms of carbon. Carbon, we are told, can be taken in by the leaves; but leaves give off carbonic acid as well as absorb it, and it is very questionable whether they do not give off quite as much as they assimilate for the plant; and it is more than probable that the greatest bulk of carbon—more than half the weight on an average of all growing crops—is taken in through their roots. Hydrogen, too, is found in growing plants in a greater proportion than nitrogen, not merely as H O—that is, in combination with oxygen as water, but in addition. Persons are apt to say this hydrogen is easily obtained from water by decomposition; but is water easily decomposed? By no means. It is this valuable property of water which makes it so useful as a solvent, that nearly all chemical salts, spirits, sugars, &c., are soluble in water without abstracting either the oxygen or hydrogen in it. Potassium and sodium are nearly the only known substances which have so great an affinity for oxygen as to decompose water, which they do by liberating hydrogen. We can also decompose water by means of powerful galvanic batteries; but as a general rule, it may be said that when once hydrogen and oxygen have entered into combination to form water there is no more stable element. I cannot see, then, that the hydrogen which exists in plants in combination with other chemical constituents besides water, can be easily obtained by the decomposition of water; and I believe that one of the important properties of ammonia, which is readily decomposed, is to give a plant hydrogen as well as nitrogen.

Again, if we make nitrogen the basis on which to reckon the value of manure, what becomes of carbonate of lime, superphosphates, common salt (chloride of sodium), potash, a most powerful manure, and other chemical manures which contain no nitrogen at all? I cannot agree, then, with "J. S. K." that "soot, malt sweepings, nitrate of soda, sulphate of ammonia, guano, all simply depend, or nearly so, on some form of nitrogen for their efficacy. For instance, soot contains carbon in a highly divided, highly soluble form, besides other important salts. Malt sweepings contain no great amount of nitrogen but a great amount of easily decomposed carbon. I need not, however, dwell upon this.

Iron is certainly an important ingredient in the colouring matter of plants, and, though it is very difficult to prove, I cannot help believing that there are certain substances which are taken up by the plants in their sap which may be valuable in helping the plants to assimilate other food, just as many medicines are found to be useful in the human system which are not assimilated into the system, or, at all events, are not necessary to the human system. We know that plants can take soluble substances not necessary to their existence into

their tissues through the sap, as experiments to that effect have been tried with colouring matter; but I do not think our chemical experiments with respect to the physiology of plants are sufficiently advanced to say whether certain substances may not act at times as stimulants to growth as well as being built up as food; and I am strongly convinced that ammonia itself acts as a stimulant, and helps in that way to induce growth, just as much as heat and moisture do.

I will not add more on this head as it is only speculative, but let me repeat one argument with respect to nitrogen that I have already used in your columns, and that is, that as nitrogen is the most inert (inactive, that is to say) chemical agent, as its tendency when in combination is always to set itself free again, when it constitutes four-fifths of the air we breathe, and is only of use as a diluent to mix, as it were, with the oxygen to prevent the oxygen being too powerful—just as we mix water with brandy to make it less injurious—it is contrary to the whole course of nature to put plants and animals in the midst of this superabundance of nitrogen, to find only a small proportion of it in their systems, and yet to argue that the value of manures and foods depends on this nitrogen. Is it not much more likely that it is only relatively of value, because all substances which contain it are easily decomposed? —C. P. Peach.

Peristrophe salicifolia aureo-variegata.—This has been flowering freely in the stove here all winter. I had a few small plants last autumn which were placed in the stove to get up a stock of it by spring for trial in bedding-out, when, to my surprise, it commenced flowering. The flowers are of a bright rose colour, but rather insignificant, yet looking extremely pretty mixed with more gaudy flowers in winter. It is worthy of a place among choice plants owing to its lovely foliage; the leaves are deep green with a golden band in the centre. The plants here are growing in peat and sand. It is a Javanese plant.—James Smith, *Exton Park, Rutland.*

KEEPING GRAPES IN BOTTLES OF WATER.

We have received from Mr. Neshit, gardener to Sir T. Whichcote, Bart., Aswarby Hall, Lincolnshire, specimens of Lady Downe's and Muscat of Alexandria Grapes, the former of which has been cut and kept in water for sixteen weeks, and the latter eighteen weeks. Both were as plump and firm as if they had been recently cut from the Vine, and were equally succulent; but there was an evident loss of flavour. The perfume had quite or all but left the Muscat of Alexandria, which, so far as flavour went, might have been White Tokay; and Lady Downe's were sweet without bouquet. Notwithstanding these evident deficiencies both sorts were in the most perfect state of preservation, and served as a sufficient proof that the method of keeping Grapes in water-bottles during winter, though at the expense of flavour in the fruit, affords the advantage of enabling the fruit to be gathered and stored early, while it is preserved in a condition to be served at table as fresh in appearance as when taken from the Vine.

We shall be very glad to receive any information on this subject from those who have practised this plan. A week or two ago we gave a description of the arrangements for this purpose in the gardens of Earl Brownlow, at Belton, where the quantity of water taken up by the Grapes was so great as to burst the berries.—Eds.

I have kept Grapes, Lady Downe's principally, with the ends of the bunches inserted in bottles of water, for four seasons, and they have kept as well as when left on the Vine. The room in which they are is dark, very little ventilated, and warmed by one of Joyce's patent stoves, in which specially prepared charcoal is burned to keep the frost out, though in severe weather the thermometer has sometimes registered 30° Fahr., or 2° of frost. I cut the Grapes between Christmas and New Year's-day, and this year I took six very large bunches of Gros Guillaume, about thirty of Lady Downe's, and twelve of Mrs. Pince. Clear glass bottles are the best to use, as those made of opaque glass cannot be refilled without spilling the water. Mr. Moore says, "Many gardeners of standing doubt the possibility of Grapes taking up water." There is no doubt that they do take up water, as the bottles in which the stalks of Lady Downe's and Mrs. Pince were inserted required refilling twice a-week, but as soon as a bunch was cut the waste of water in seven days was scarcely perceptible. As bearing somewhat on Mr. Ferme's statement, the waste of water from the bottles in which were the Gros Guillaume was very little in proportion to that from the bottles in which were Mrs. Pince and Lady Downe's. The reason of this was soon apparent, as the footstalks began to shrivel, and every one of the bunches soon had the appearance of shanking.

The berries are still plump, but, as may be expected, no water is now taken up. The stalks of the other two sorts still remain fresh, and the berries still continue to absorb the same quantity of water. I have never weighed any bunches myself before hanging them up, but it would be interesting to do so, then weigh the water they absorb, and afterwards weigh the bunches. I always use rain water with a few lumps of charcoal in the bottle, and have never found the berries crack. I think the system a good one, a great boon to gardeners, and a great saving of fuel to employers. I hope others of our readers will give their experience.—J. Douglas.

BOX-EDGING AND THE TREE BOX.

Amongst the many excellent maxims and the sound practical advice which the worthy writer of "Doings of the Last Week" from time to time places before us, there is one to which I am strongly disposed to make an exception, and that is the trimming of Box-edgings. "R. F." recommends this to be done in the spring, which is, no doubt, the time most suited to the welfare of the plant, but certainly not the best for cutting in order to secure a neat edging during the greatest number of months in the year. I make this statement on the assumption that the Box is only cut once a-year, which, with the slow-growing variety generally used for edgings, is in most cases sufficient. If the cutting is done at the end of March or in April, the Box will begin to grow again soon afterwards, and by July will have attained nearly its full growth, in which condition it must remain till the following March or April. Now although I by no means approve of close-shaven Box-edgings but rather of those which have been trimmed by means of a kind of knife-pruning, still this last mode can only be adopted where the quantity is limited or labour easily obtainable. Assuming, therefore, that the shears have to be used (and I have even known the scythe), the time and mode of doing it, so as to insure the shortest possible period of unsightliness, appears to deserve attention.

In my practice the best results have been from the cuttings done in the middle of summer rather than from those made in the spring. At the end of June or thereabouts, when the growth of the season is about half made, the Box should be cut in dull weather, by which means the browning of the newly-exposed leaves by the sun is avoided. When after-growth sets in it gives to the edging the appearance of having grown the required height and width, instead of having been trimmed to it. It quickly attains this condition if the weather be at all favourable, and from the month of August till the following May remains in a great measure stationary.

This practice has its drawbacks, for, as showery weather does not always happen when wanted, I have often had to wait till late in July, and on one or two occasions later than that. I always try to have it done in time to allow of a little after-growth, as it is more pleasant to look upon this than for a long time on a saw-cut edge. The cutting of it in moist weather can usually be effected by a little management, and the result will be satisfactory, as it is surprising how quickly the Box recovers its proper hue again compared with what it does in dry weather.

It is much to be wondered at, that of the many plants added to our various lists of the useful and ornamental classes there has not been one to compete with the dwarf Box as an edging of a durable kind; but there are more varieties of Box than one, and now and then an inferior kind gets mixed with the other. In this case the dwarfest variety does not require much clipping for some two or three years after being planted; whereas a stronger grower rushes up several inches high at once. The tree Box proper is also a shrub deserving of cultivation, as it excels in hardiness that of most others. Unfortunately it is of slow growth, and is, therefore, less planted than it ought to be; but there are places for which it is especially fitted, particularly where rabbits abound; and although I have seen Berberis Aquifolium and the common Yew destroyed, and the Rhododendron much injured by these vermin, it is rarely indeed that they attack the common tree Box.

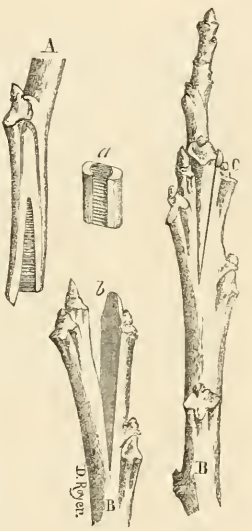
It has often been a mystery to me from whence the Box-

wood is obtained for the many purposes it is said to be applied to. Toys, mathematical instruments, blocks for engraving, and a multitude of other articles are made of this choice wood. I believe in years gone by Turkey, Asia Minor, and adjacent countries furnished supplies, and perhaps may do so yet.—J. Ronson.

GRAFTING THE WALNUT.

As the Walnut will not admit of being grafted after every ordinary method, we have tried several others, and have succeeded in effecting what the Society of Agriculture wished, by means of the same treatment as that to which the Oak and the Vine show themselves amenable—a graft in the cleft of a fork.

It should be done in the spring, just as the sap is beginning to flow, and the buds to swell. The grafts are branches of the previous year kept alive in a dark place among gravelly sand, which does not become so dry as common earth. The union of two kinds whose course of growth is unequal should be avoided, the graft being, in every case, of a kind coeval or less advanced in its nature than the stock. It should be from 3 to 6 inches in length, and cut at the end into a triangular shape—as in the case of a common graft, and placed in a cleft made by splitting up the stock as far as the centre of the knot formed at the forking of two branches. These branches should be shortened to about 10 inches, and the shoots which arise from them pinched as the buds of the graft progress, taking care that the earlier leaves are left to draw up the sap, which they do without starving the graft. In the following August the snags of the stock may be lopped off close to the graft, when the scars will heal before the fall of the leaves.



If the graft be too pithy the cut should be made diagonally, so as to resemble the mouthpiece of a flute, and the bark of the projecting side trimmed off as far as the sapwood. In this case the stock should be cut obliquely, and not vertically. A graft of two-years-old wood at the base will do very well for making the cut upon; but if it be of wood only a year old, care should be taken that it have a terminal bud. The fork in the stock can always easily be obtained by pruning or pinching the leader at the height intended for grafting.—Charles Baltet (in *Bulletin du Cercle Horticole*).

THE ROYAL HORTICULTURAL SOCIETY AT BIRMINGHAM.

Messrs. J. C. Wheeler & Son, Seed-growers, of Gloucester and London, have placed at the disposal of the Local Committee for the Birmingham Show of the Royal Horticultural Society, the sum of ten guineas, to be offered for the best collection of plants in pots, in bloom, bearing sweet-scented flowers, such as Roses, Lilies, Honeysuckles, Stocks, Jasmines, Mignonette, Violets, Carnations, Pinks, &c., ornamentally grouped.

It will have been noticed that a resolution was passed at the public meeting, requesting the Local Committee to give their attention in a special manner to the exhibition of horticultural implements, buildings, &c. If the Special Prize Committee should have ample funds at their disposal, would it not be advisable to open a few classes in which prizes should be offered for manufacturers only, of some of the leading articles? for example, lawn mowers, garden rollers, garden engines, garden seats, vases for different purposes, flower pots ornamental and otherwise, collections of spades, forks, hoes, &c. In addition to these prizes the Judges might visit the stands of all other exhibitors and distribute prizes to articles of merit not included in these classes.—H.

AMONG THE CONIFERS.—No. 3.

Near large towns where the air is tainted with smoke Conifers will not thrive. Exist they certainly will, but their begrimed attenuated appearance is not such as to add to the beauty of the spot on which they are planted. To be called handsome a Conifer should be clothed at the base with a mass of thick foliage, and should rise upwards, tapering gracefully, and being perfectly wanting in heaviness or formality.

When walking lately through a nursery near London, I noticed that whilst the Conifers were in poor condition some large breadths of hybrid and Ponticum Rhododendrons and green Holly were in excellent health. It is worthy of note that two such valuable shrubs thrive so well under conditions trying to the health of most hardy plants.

The various shades of the foliage deserve more attention than has hitherto been given them, as by judicious care in arranging them most charming combinations may be wrought out. Light and shade may here have full play, the sombre hue of Taxus baccata, the common English Yew, finding ample relief from the glaucous foliage of Picea nobilis, or losing all its heaviness when contrasted with the bright-toned Chinese Juniper—one of the hardiest and most beautiful evergreens in cultivation. Such Pinuses as muricata and insignis with their pleasing green, the Heath-like Retinospora ericoides, the variegated Biota orientalis elegantissima, and Chamæcyparis sphæroidea variegata play an important part here. Flowering shrubs should also be introduced, and the best for this purpose are such trees as Acer rubrum, Acer Negundo variegatum, the snowy Mespilus (Amelanchier Botryapium) (valuable both for its flowers and the beauty of its foliage in autumn), the purple, weeping, and Fern-leaved Beeches, the scarlet and purple Oaks, coccinea and nigra, and the variegated Elm (Ulmus microphylla variegata), a beautiful, but too-little-known tree, of which there are some fine specimens at The Mote, the seat of the Earl of Romney, near Maidstone. Then there are the Weeping Birch, the Fern-leaved Walnut, Liquidamber, and some of the deciduous Magnolias. With such materials beautiful groups might be formed.

This is an interesting work which requires more than a mere superficial acquaintance of the plants on the part of the planter, whose aim should be so to arrange them that they shall not only produce a pleasing effect in the first instance, but also annually increase in beauty, individually and collectively. To obtain such a desirable result there must be no crowding. Close attention also should also be given to the habits of growth, so that they may be graduated from the tallest kinds down to the front ranks, where even the dwarf Savins, tamariscifolia and prostrata, find a place as an appropriate edging. Here come some of the other dwarf-growing kinds, such as Abies pumila, pygmæa, and elegans, the dense clanbrasiliana, the pretty Thuja ericoides and many of the Junipers, which form an interesting fringe to the taller and more graceful kinds. In addition to these the following afford a rich variety in form, colour, and height:—Abies orientalis, the bright-coloured Thuja (Biota) elegantissima, Chamæcyparis sphæroidea glauca, Cupressus Lawsoniana erecta viridis, so fine in form and bright in colour, Cupressus Lawsoniana gracilis, Juniperus thurifera, Thujopsis dolabrata, and Abies Albertiana, which with its pendulous branches rivals that of canadensis. Then there is the Weeping Spruce (Abies excelsa inverta), the Swiss Stone Pine (Pinus Cembra), a distinct kind, of a close rigid aspect, but with its branches so disposed as to form a handsome pyramid. It is one of those kinds that acquire beauty with age. Cedrus atlantica, and Salisburia adiantifolia also deserve a place. Like the Deodar, Cedrus atlantica varies very much in the colour of its foliage, being in some instances of a dull green, and in others of a bright silvery hue. There are others not so symmetrical in form, but having beautiful foliage. The most remarkable of these are Pinus Benthamiana with deep green foliage nearly a foot in length, and Pinus macrocarpa, a valuable and distinct variety, having long dense foliage of a greyish

blue tint. These two kinds are distinct, and of such lofty growth as to be equally valuable for their timber as they are for decorative purposes.

Besides being used for the purposes already noticed, many Conifers may be introduced with good effect into large rockeries. All the prostrate dwarf kinds, as the common Savin, the dwarf Juniper (Juniperus nana), and the somewhat higher but equally spreading Juniperus squamata, appear to a great advantage spreading over and among the rocks. Then, too, the pretty dwarf Juniperus hybernica compressa, Thuja ericoides, and other species of a similar compact dwarf habit of growth, blend well either with Ferns or Alpine plants among the nooks and corners of the rocks, while kinds of loftier growth and more graceful habit form a useful shelter. Whenever trees or shrubs are planted for effect, shelter, or the production of timber, there some of this useful genus should find a place. Many of them possess valuable economic properties, but it is improbable that all these kinds will ever attain so full a development in the climate of this country as to render the culture of them desirable when contemplated from such a point of view. It is, however, I think, a subject of sufficient interest to merit a separate paper.—Edward Luckhurst.

ASTROCARYUM MEXICANUM.

The genus Astrocaryum belongs to the Cocoeæ section of the order Palmaceæ (although I am not aware that they are of any value in an economic point of view). It is composed of a few handsome species, and amongst them A. mexicanum, a representation of which we reproduce from M. Alphand's work, is by no means the least elegant.

The species are all more or less armed with long, sharp, and formidable black spines. The genus is distinguished by its unisexual flowers, which, however, are not produced on separate plants, but really upon the same spike. The spikes are simply branched, and the female flowers are confined to the lower portion, and the males to the upper, which would appear to be a wise arrangement of Nature to insure the fertilisation of the flowers, for were their positions reversed impregnation would be extremely problematical. The fruits are oval and single-seeded. In their natural habitats the plants affect the banks of streams and large rivers, and I believe they are seldom found at any great distance from water, which is the general rule with Palms armed with spines. Astrocaryums are slender-stemmed plants, carrying extremely handsome heads of broadly pinnate leaves, which, in A. mexicanum, are dark green on the upper side, and pure white beneath. This species is extremely ornamental in a collection of tropical plants, and is also one of the best for exhibition, either in a collection of Palms or mixed stove and greenhouse plants; but it will never become a small amateur's plant, or a plant for the decoration of apartments, for the simple reason that it will not long retain its beauty out of the temperature of the stove.

Astrocaryum mexicanum.

The soil best adapted for Astrocaryums is a mixture of loam and vegetable mould in the proportion of two parts of the former to one of the latter, adding sufficient sharp river sand to make the whole feel gritty in the hand. The young plants should be potted firmly; and taking into consideration the spiny character of the plant, it must be liberally supplied with water both winter and summer; indeed, in summer it will be highly beneficial to place the pot or tub in a large pan of water.—Experto Crede.

DIELYTRA SPECTABILIS CULTURE.

The opening Fruit and Floral Meetings of this year at South Kensington are already distinguished by their great excellence. Not only are the classes in which prizes are offered well filled, but the large and choice collections of Orchids and other plants add very materially to the interest and success of the meetings. There is one notable feature to which I wish to allude at this time, and that is the choice and interesting collections of hardy herbaceous plants. Since the bedding-out mania set in, these exquisite gems of the vegetable kingdom have to a very large extent been ignored. There are now, however, very evident signs of returning popularity, and no doubt ere long nearly every garden will have in some quiet nook its border of choice herbaceous plants. Many of them, though hardy, are amongst the most useful of our decorative plants in-doors, and, with a little forcing, the season of flowering is much prolonged. What would our greenhouses and conserva-

tories be early in spring without a few plants of the Hoteia japonica, with its graceful snow-white inflorescence, or without that exquisite little gem the Lily of the Valley?

Another very useful subject, and a queen amongst herbaceous plants, is the Dielytra spectabilis. A class was specially provided for this flower at the February meeting of the Royal Horticultural Society, and well deserving it is of a class all to itself, for when well grown there are few more beautiful objects than this; several collections were staged at the meeting, but all of them were far behind what the plant is capable of being grown to. I well remember the fine plants of it which used to be exhibited at a small provincial exhibition in Scotland some fifteen or twenty years ago, each plant being furnished with several dozens of gracefully-drooping racemes of its pendant bright rose-coloured flowers. Perhaps Mr. Wemyss, of the gardens, Springwood Park, Kelso, could tell us how they were grown. Each of his plants was a good load for a couple of men.

The Dielytra is, properly speaking, a hardy herbaceous plant, and to grow it successfully it should be treated as such. About the first week in February is a good time to propagate stock. The method of procedure is this:—Lift an old plant from the open border; it may have a score of crowns, more or less. By this time they will have pushed 2 or 3 inches; they should be carefully divided with a sharp knife, a small portion of roots being attached to each. The small plants may be treated in two ways: they may either be planted out at once in the open ground, or each crown may be potted separately in a small pot, and placed in a cold frame, or they will root and grow more freely if placed on a slight hotbed. After the plants are well established and duly hardened-off, they should be planted-out in the open ground. Previous to doing this, the ground should be well trenched and enriched with a liberal application of manure, as the Dielytra is a gross feeder, and its fleshy roots penetrate deeply into the ground. These plants will be useful for flowering the following season in small pots.

If the plants are required to attain a large size they should remain undisturbed in the same position for three or four years. They will flower beautifully in the open ground every season in May or June. Being a native of Siberia, the Dielytra is quite hardy, and requires no protection whatever in winter. I have seen it succeed equally well in light and heavy soils. The best potting material is a compost of four parts turfy loam, one of leaf mould, one of rotted manure, with a small proportion of silver or river sand if the loam is heavy. In forcing, the temperature should not be high until the plants are fairly started into growth, and they should be set close to the glass; if otherwise placed they are apt to become drawn. —J. Douglas.

LATE GRAPES.

Mr. Donaldson's experience with Mrs. Pince, and Mr. Freeman's with Madresfield Court Grapes, have much interested me, and no doubt all your gardening readers as well. The difference of opinion which exists with respect to the keeping qualities of these and other late Grapes has struck me as remarkable. In some places the varieties named are highly prized for their free setting, or freedom from small berries, and sound late keeping, whilst in others small berries or unsymmetrical bunches predominate, and the berries shrivel if left on the Vines beyond the commencement of the new year. What is the cause or causes of such a difference in the result, experience alone can tell us, and I am therefore glad of the observations of Mr. Douglas, Mr. Record, and of "W. D. C." (page 59). It is very desirable that those having to supply Grapes of last year's growth after January 1st should state the varieties they employ and their opinion of their keeping.

My experience is not great, but I will state it. I have a late vinery planted as follows from east to west—1, Muscat of Alexandria; 2, Black Hamburgh; 3, Muscat of Alexandria; 4, Mrs. Pince; 5 and 6, Gros Guillaume; 7, Bowood Muscat; 9 and 9, Lady Downe's; 10, Black Muscat of Alexandria (Muscat Hamburgh); 11 and 12, Black Hamburgh. The varieties are not as contemplated; what I wished for were—1, Muscat of Alexandria; 2, Madresfield Court; 3, Trebbiano; 4, Mrs. Pince; 5 and 6, Gros Guillaume; 7, Bowood Muscat, or Muscat Escholata; 8 and 9, Lady Downe's; 10, White Lady Downe's; 11, Black Muscat of Alexandria; and 12, Alicante. I found the Vines incorrectly labelled, and as they had evidently been planted as ticketed, the Trebbiano, &c., were in an early house. The latter, though ripened in July, is yet firm and crackling.

We did not commence cutting until the middle of December last, and all were plump and sound then, without so much as a damped or shrivelled berry. I do not consider, until we have passed November, or until the leaves fall, that fire heat affects the keeping of Grapes. The first Grapes to show symptoms of shrivelling were Muscat of Alexandria and then Mrs. Pince, neither being presentable after Christmas-day. Bowood Muscat could barely pass muster on New Year's-day; Black Hamburgh, also Black Muscat of Alexandria, keep sound until the close of January, the latter kind being the better of the two. I am here referring to their previous behaviour. Judging from my Vine of Mrs. Pince, the variety is not to be compared with Black Hamburgh for keeping, nor is it nearly so profitable, for it always has a majority of small berries. It is, however, a fine-flavoured Grape. Lady Downe's keeps sound and plump past March, and Gros Guillaume is then by far its superior as regards flavour and juiciness, being with me the finest late Grape.

For a supply of Grapes from the end of September to the New Year no variety surpasses Black Hamburgh, with Muscat of Alexandria as a white Grape: but they should be grown in separate structures, for the Hamburgh requires less heat than the Muscat. The Hamburghs should be thoroughly ripe by the middle of September, and the Muscats of a deep yellow colour. It is well known that unless Grapes are well ripened they will not hang for any length of time in a sound condition. It is questionable if there are any two Grapes equal to these, taking into consideration certainty of crop and quality of produce. If a black Grape with a Muscat flavour be wanted, Mrs. Pince is a finer-looking one in bunch, size of berry, and colour than Black Muscat of Alexandria, and will suit those who like firm flesh. It also retains its flavour longer. Black Muscat of Alexandria, however, is a valuable Grape, and will pass the New Year in a sound state better with me than Mrs. Pince, which I find is the worst-setting of any; yet I have seen Mrs. Pince very fine, and our Vine being young another season may entirely upset prior conclusions. Madresfield Court I have seen very fine late in autumn, but I have no experience of it.

Though agreeing to some extent with "W. D. C." that the keeping quality of Grapes is not dependant on the amount of saccharine matter which they contain, it is certain that the development of the saccharine matter is dependant on the ripening, and if this is not complete the prospect of the Grapes' late-hanging is small. The saccharine matter is greatest in the kinds that shrivel the soonest—namely, the Muscats, and unless it is well developed they will not keep, but will soon damp. When the ripening of such kinds as Lady Downe's is not very complete from want of sun in the autumn, or when it is not finished till late, the thick skin of the berries is not proof against shrivelling at the points of the berries, the part near the footstalk remaining plump and sound.

"W. D. C." considers "the latest section must be filled up with Lady Downe's without any other black Grape." It is undoubtedly the latest-hanging of all, yet I see in Gros Guillaume merits which Lady Downe's does not possess—namely, very much larger bunches and berries, considerably more juice, not nearly so thick a skin, and flesh (as Mr. Rivers would say of the Pear) more melting; Lady Downe's being so firm as to be little better than indiarubber.

I consider we have five Grapes that will hang quite long enough. Those are black Lady Downe's, Alicante, Gros Guillaume, White Lady Downe's, and Trebbiano, which is a good match for Gros Guillaume, as Lady Downe's is for its white namesake. In a house for furnishing Grapes from December to May I should plant these five varieties to the exclusion of all others. I have seen the original Lady Downe's with fine clusters of plump berries at the end of April.—G. Abbey.

THE MANURES FOR CARROTS.

By Cuthbert W. Johnson, F.R.S.

The amount of Carrots grown in our island is hardly so considerable as the value of the root for feeding purposes would lead us to expect. In the year 1870 there were in all England only 13,832 acres grown, in Wales 351, and in Scotland only 1076 acres. For this very limited growth there are, probably, one or two reasons. 1, Carrots are supposed only to succeed on certain deep sandy loams; and 2, It has been doubted whether we well understand the best kind of manure for their growth. Some late researches on this very considerable question are, therefore, well worthy of the reader's careful study. From the general results obtained from these most

valuable inquiries, it would seem that those fertilisers in which ammonia is copiously present produce the best crops of Carrots. Let us remember what has been done in this inquiry in Scotland. It is not very long since that the Highland Society awarded their gold medal to Mr. J. Stevenson, of Cumnock, for his experiments on this root (*Trans. High. Soc.*, vol. 1864, p. 149). He found that the best soil for the Carrot is a sandy loam, either naturally deep or made so. The farm manure for it—thirty to forty loads per acre—should be ploughed-in during the early winter; that of the horse is very excellent for this root. Mr. Stevenson adds 4 cwt. of guano, and 6 cwt. of salt; at Cumnock the Altrincham Carrot seed (8 to 10 lbs. per acre) is not sown till after the middle of April. The Long Red Altrincham, when a large crop, produces from 15 to 20, the common Red Altrincham from 11 to 14 tons per acre. From the result of his trials, Mr. Stevenson concludes that 35 tons of horse dung a year old, five hundred gallons of tank urine, 4 cwt. of guano, and 6 cwt. of salt per acre is the best dressing, and that fresh-made farmyard dung, or cow dung, or ashes, are not so suitable for Carrots. Soot is an excellent manure for Carrots (soot contains a considerable amount of ammonia). The farmer will find, in using soot, that its effect on light soils is materially increased by adding to it from eight to ten bushels of salt per acre.

Then we have the report (*Mark Lane Express*) of the trials of Mr. C. D. Hunter, in the season of 1871, upon Mr. W. Lawson's, Blennerhasset Farm. The results of his trials are given in the subjoined table :—

Manures per acre.	Cost of Manure.	Weight of crop per acre.	Value of crop, less cost of manures.
	£ s. d.	Tons. cwt. lbs	£ s. d.
1. No manure	—	10 16 48	14 1 3
2. Superphosphate 6 cwt., muriate of potash 2 cwt., and sulphate of ammonia 3 cwt.	5 18 0	17 18 14	22 15 0
3. Same as No. 2, but only 2 cwt. of sulphate of ammonia	4 18 0	18 5 70	26 8 7
4. Superphosphate 6 cwt., and sulphate of ammonia 3 cwt.	3 16 0	10 4 42	12 0 9
5. Superphosphate 6 cwt., and muriate of potash 2 cwt.	2 18 0	15 15 0	22 6 0
6. Superphosphate 6 cwt., salt 2 cwt., sulphate of ammonia 2 cwt.	3 17 0	10 6 28	13 3 4
7. Superphosphate 6 cwt., sulphate of magnesia 2 cwt., and sulphate of ammonia 2 cwt.	4 10 0	10 17 56	13 8 10

Upon these results Mr. Hunter remarks that "The value of potash for Carrots upon this soil is well shown by comparing Nos. 2, 3, and 5 against Nos. 4, 6, 7, the three potash plots giving nearly 7 tons per acre more weight. In plot 2 the extra cwt. of sulphate of ammonia does not seem to have been of use, but the reverse; and No. 5, which got more, and was on inferior land, comes so well up to Nos. 2 and 3 that probably 1 cwt. of sulphate of ammonia per acre would have been sufficient. The salt and sulphate of magnesia in Nos. 6 and 7 show a little better than No. 4, but not sufficient to warrant their use. From former experiments I would conclude that Carrots require less ammonia than Potatoes, and would suggest as a suitable dressing per acre for Carrots, 6 cwts. superphosphate, 1½ cwt. muriate of potash (or 3 cwts. of potash salts), and 1 cwt. of sulphate of ammonia." Then, again, the application of the dung of the pigeon has been found a very beneficial application to Carrots. Now this manure contains a very considerable amount of ammonia. When analysed by Professor Anderson (*Trans. High. Soc.*, vol. 1864, p. 170), he found in one hundred parts of the dung of the—

	Pigeon.	Hen.	Duck.	Goose.
Water	58.32	60.88	46.65	77.08
Organic mat. and ammo. salts	28.25	19.22	36.12	13.44
Phosphates	2.69	4.47	3.15	0.89
Carbonate of lime	—	7.65	3.01	—
Sulphate of lime	1.75	—	—	—
Alkaline salts	1.99	1.09	0.32	2.94
Sand	7.00	6.69	10.75	5.65
	100.00	100.00	100.00	100.00
Ammonia	1.75	0.74	0.85	0.67

These valuable examinations, we must remember, were made of the dung of birds living chiefly on vegetable matters. What would be the result upon the composition of their dung by feeding them upon a considerable proportion of animal food we can only judge from analogy. Thus, if we examine the excreta of those birds which feed chiefly on fish, we find that it abounds with uric acid and ammonia. From these analysations we learn why the Peruvian farmers so much prefer the recent guano evacuated by the sea birds to that of the older more decomposed deposits. Dr. Wollaston found that the recently-voided excreta of the gannet, when dry, contained hardly anything but uric acid; and Coindet found in one hundred parts of the solid excrement of the sea eagle—

Ammonia	9.22
Uric Acid	84.65
Phosphate of lime	6.13
	100.00

Several comparative experiments, made some time since by Mr. A. J. Main, of Whitehill, in East Lothian, are in accordance with the examinations of the chemist. He employed both pigeon's and hen's dung, in conjunction with farmyard manure, as a dressing for Carrots, with a result per acre of which the following is a tabular statement :—

Manure employed.	Carrots produced. Tons.	Cwt.
Home-made manure, 24 tons	12	13¾
Home manure 16 tons, pigeon's dung 4 cwt.	14	5¾
Home manure 16 tons, hen dung 4 cwt.	11	12¾
Home manure 16 tons, Peruvian guano 4 cwt.	13	16¾

Another inquiry suggests itself—viz., Whether the growth of the Carrot might not be promoted by being mixed with other plants? I learn from a Scotch clergyman, that in his garden in Stirlingshire he can only grow Carrots successfully mixed with Onions.

WINDOW GARDENING.

The very ring of the name of window gardening is pleasant, and suggests hosts of beautiful parlour gardens, with the Ivy twining around the edges of the window sash; or on a stand in front of the pane is a pot of Geraniums, and over all hangs a basket filled with drooping plants. We are glad to see a growth of taste for plants; a genuine love for flowers promotes the love of home.

Much that is essential to success in the in-door culture of plants must be learned from experience. One great mistake is in a wrong choice of the soil; many often suppose that any soil will do: hence, especially in cities and villages, they are often apt to choose soil from the back yard, unfit for plants' needs, being either too dry, devoid of fertilising material, or already exhausted by continual drafts from the numerous roots of the plants around. The best, and in fact only soil, should be a compost of loam, one part; sand, one part; leaf mould, one part; and well-decayed cow manure, a fourth part. The use of the sand is to assist drainage; the proportions of the manure may be varied according to the needs of the plant. Ivies, for instance, need a rich soil, but bulbs generally need little or none, pure sand being much the best for the last, which should never come in contact with manure. The sand should be well mixed with the compost. In the bottom of every vessel, box, or basket, there should be laid a few bits of broken crockery for the more perfect flow and drainage of surplus water. Most vessels have holes in the bottom also, but in hanging baskets this cannot be expected, so the crockery must take its place.

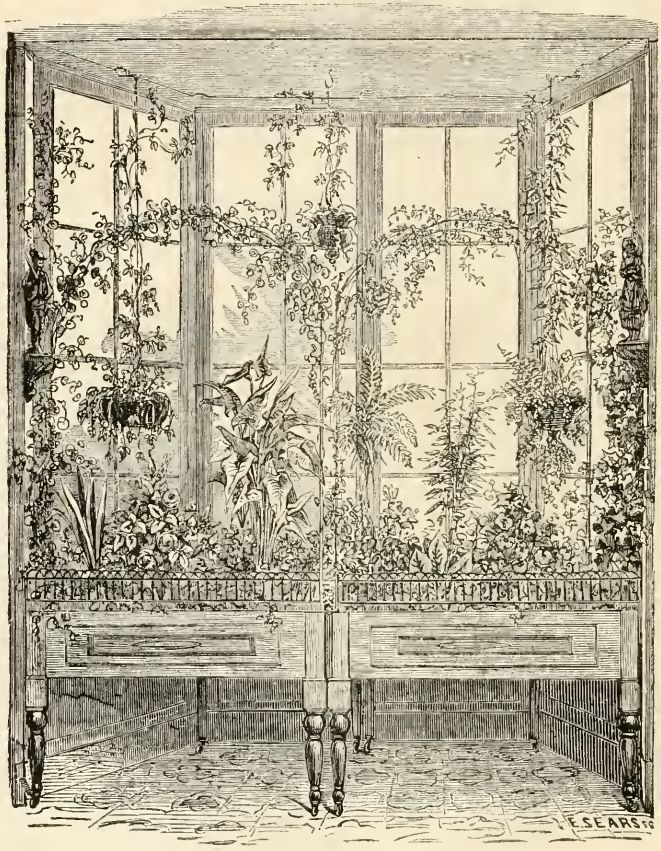
Select plants of good short-jointed stocky habits with leaves of healthy look; large specimens are not desirable. It is better to get those plants which are well started, and are growing finely, and then let them develope gradually. When you have obtained your new plants, be careful of too sudden a change from the old quarters to the new. This hasty transition is very trying to plants. The hot dry air of the living-room is a severe test upon any plant brought from the cool outer air, or the moist atmosphere of the florist's greenhouse. It would be best that this change should be gradual. Just bring them in-doors, and place them in a room without a fire for a short time. If you have a light dry cellar, this will be a good place, if not liable to frost. Here they need only moderate watering. After a short time they can be transferred to the window; here they must enjoy plenty of light. In mild weather, pull down the upper window and ventilate the air; keep their foliage free from dust and insects; wash them with a sponge, and syringe the plants with a good supply of water once a-day. If the water soaks away in the soil rapidly, then it is in good condition. Never water when the soil is already full of moisture; never water at mid-day, or when the sun is shining.

Avoid very high temperatures, and also guard against low ones; a temperature of 60° to 70° in the day, equable and uni-

form, is a good medium, but at night it should range from 40° to 50°. Beware of the danger of frost. Many housekeepers, in letting their fires go out at night, often forget their plants, and in the morning awake to find a sudden change of weather, frost on the window pane, and their plants tipped also. It is a safe plan to throw newspapers over the plants between them and the window.

All plants suitable for greenhouses needing much heat, should be avoided for ordinary parlour culture; only the more simple plants that can be easily managed should be used, but Geraniums, Azaleas, Daphne, Yellow Jasmine, Oxalis, Fuchsias, are always desirable and easily managed.

The design of a window garden of which we give a drawing, is one actually in use. The bow window is about 6 feet wide and 3 feet deep. A double stand has been made to fill it up, and the boxes inside are lined with zinc, filled with compost, and covered with moss. A wire framework is placed in front for ornament, and from the centre and sides rises an archway of wire whereon are growing some climbing Vines. The plants placed in these boxes are Madeira Vine, Manrandyas, Mexican



WINDOW GARDEN DESIGN

Cobæa, Calla, Roses, Carnations, Fuchsias, Amaranths, Coleus, and Begonias.

The hanging vase over the centre arch contains a plant of the Coliseum Ivy. On a bracket just at the edge of the window sashes is a dish of Ferns. At the left hand is a hanging basket filled with Moss, and plants of the Oxalis and Tradescantia; another basket at the right contains the Ice Plant, as well as the Tradescantia.—(*The Horticulturist.*)

POTATOES AND TOBACCO.

These plants are much closer allied and associated in many ways than the unsciencèd reader may suspect. The botanist places them in the same natural order—Solanaceæ. The chemist shows that they each contain an alkali, poisonous to some animals—solanine in the Potato, and nicotine in the Tobacco. They were brought into use almost simultaneously, and by the same man. Their use was at first opposed and neglected, and now their consumption is among the largest of all vegetable products. The duty paid last year on Tobacco was £6,613,668, and although more than one and a half million of acres are annually occupied by crops of Potatoes, yet there are also imported annually about one million and a half cwts. of this

tuber. Tobacco has become the greatest leaf-luxury of life, and the Potato "the bread-root" of the British Isles. The man who introduced their use into our native islands was Sir Walter Raleigh; I spell his name as he spelt it himself. To detail the events of his biography would not be suitable to your columns, but I must note a few relative facts and traditions. When at Bieton last year I looked down from the Tower in the lower plantation upon Hayes Barton and its surroundings —a combination of one of the most beautiful seacoast and land views in South Devon. Hayes, in 1552, was the birthplace of Sir Walter Raleigh. It is near to a large wood of that name, which adjoins the village of Yettington, and is about half a mile from the western entrance to the Bieton demesne. The house is now occupied by one of the tenantry on the Rolle estate, and is distant somewhere about one mile from Budleigh Salterton, in a south-westerly direction. There are several antique chairs in the Swiss cottage in Bieton arboretum, which are said formed part of the property of Sir Walter, and they as well as a bust of Sir Walter, are placed in a niche of the temple.

It is disputed whether Sir Walter introduced the Tobacco plant into England, but Stowe says that he first made known the smoking of "the weed." James I., "when all men wondered what it meant," detested frantically "the precious stink," as he calls it in his "Counterblast to Tobacco," and so inveterately pursued measures to prevent its use, that the tradition is that Sir Walter, who was a smoker, was obliged to row to a rock in the river Dart to use his pipe, and the place is still known as "Sir Walter Ralegh's Rock." He was a snuff-taker also, and the box from which he took a pinch when about to kneel down before the headsman was disposed of for £6 at the sale of the late Duke of Sussex's personal property. Sir Walter's having introduced Tobacco would not aid those who endeavoured to move the king to save him from execution. So offensive was it to that most selfish and weakest of monarchs, and so general had the use of "the weed" become, that the Cambridge University authorities warned scholars in 1614-15 not to go into a "Tobacco shop," nor "to take Tobacco in St. Marie's Church, or in Trinity Colledge Hall," during the king's visit. One of Sir Walter's residences near London was the house now known as the Pied Bull Inn, at Islington. There is an engraving of this house in the sixty-first volume of the "Gentleman's Magazine," and then, 1791, in one of the rooms a coat of arms had upon it a Tobacco plant between two sea horses. I now pass to the association of Sir Walter with the Potato, and relative to this I have nothing to add to the following notes published by me some years since.

Sir Walter Ralegh's Birthplace.

The positive testimony of Gerard proves that the Potato was forwarded to him from Virginia; and how they reached that province of North America will be made to appear probable by the suggestions of Humboldt. Gerard, we may conclude, received the tubers from some of the settlers in Virginia, who emigrated thither about twelve years previously, in 1584, under a patent granted by Queen Elizabeth to Sir Walter Ralegh. And thus much is certain, that, in 1693, Sir Robert Southwell, President of the Royal Society, communicated to that learned body the fact that his grandfather first cultivated the Potato in Ireland, and that he obtained it from Ralegh. Tradition states, further, that Sir Walter himself also had the root planted on his estate near Youghall, in the South of Ireland; and that he gave them to his gardener as a desirable fruit from America. When the berries were ripe in September, the gardener brought them to his master, with the inquiry of disappointment, "Sir, are these the fine American fruit?" Sir Walter, either really or pretendingly ignorant of the Potato's habit, desired them to be dug up as weeds, and thrown away; but in doing this the tubers were revealed, and found to be the available produce.

Humboldt rationally concludes that the Virginian colonists obtained the Potato from the Spanish settlements, for it is quite clear that it is not a native of Virginia nor even of intervening Mexico, and that it was cultivated in Spain and Italy before it was made known in England from Virginia.

Although the Potato was known to English botanists in 1596, yet horticulture was too ignorantly practised in this country to permit its rapid introduction among our cultivated crops. In 1619 they were here a desired yet expensive luxury; for in that year of James I.'s reign, a small dish of them provided for his queen's table cost 1s. per lb., when money was at least twice as valuable as it is now.

Potato cultivation spread rapidly in Ireland; and it became established, it is said, in Lancashire, and that portion of our northern coast still celebrated for its culture, owing to some being on board a vessel wrecked upon its shore. Yet the value of the root was not generally known at a still later period, for in a time of scarcity—namely, in the March of 1663, it required to be recommended as a crop of national importance in a letter addressed to the Royal Society. The writer of this letter was Mr. Buckland, a Somersetshire gentleman; and the recommendation was referred for consideration to a committee by the Society. The report of that committee was favourable, and the Society not only urged its cultivation to landed proprietors, but requested Mr. Evelyn to enforce the Society's opinion in his "Sylva," then publishing under its auspices, although it was no favourite with him; for in 1664, in his "Kalendarium Hortense," he says, "Plant Potatoes in February in your worst ground." Before the "Sylva" appeared — namely, in 1664, was published a pamphlet, the first devoted to the subject of cultivating the Potato, and bearing this prolix title—"England's happiness increased, or a sure and easy remedy against all succeeding dear years, by a plantation of the roots called Potatoes, whereof (with the addition of Wheat flour) excellent, good, and wholesome bread may be made, every year, eight or nine months together, for half the charges as formerly. Also, by the planting of these roots, ten thousand men in England and Wales, who know not how to live or what to do to get a maintenance for their families, may, of one acre of ground, make £30 per annum. Invented and published, for the good of the poorer sorts, by John Forster, Gent., of Harslop, in Buckinghamshire."

Notwithstanding the widely-disseminated opinions of the Royal Society, and these published appeals to the public, the introduction of the Potato as an object of cultivation was extremely slow.

Worlidge, in 1687, although he remarked that the Potato was then common in some parts of the continent, merely suggests that they may be useful for swine or other cattle.

Houghton, writing in 1699, says they were then very common in Lancashire, being introduced from Ireland, and that they began to spread over England. The roots were boiled or roasted, and eaten with butter and sugar!—(*Collections*, ii., 468.)

Sharrock, Ray, Lisle, Bradley, Mortimer, &c., writing at the close of the seventeenth, and early in the eighteenth century, make most slighting mention of the Potato; and even Miller, in the quarto edition of his dictionary, published as late as 1771, only mentions the same two varieties, the red and the white-tubered, which had been noticed by writers a century his predecessors.

Salmon, who wrote in 1711, speaks of the Virginian, and the English, or Irish Potato, as distinct kinds, though his description shows their identity—the only difference being, that the colour of the skin of the tubers of the first was dirty white, and

of the second red. "They are only nursed-up in gardens in England and Ireland, where they flourish and come to perfection, prodigiously increasing to a vast plenty. The roots are boiled, baked, or roasted."—(*Salmon's Herbal*, 905.)

London and Wise, in the seventh edition of their "Compleat Gardener," published in 1719, do not even mention the Potato (but it must be remembered that this is only an abridged translation of M. Quintinye's work, published some years previously). However, even as late as about 1770, the Potato was not known generally in our south-western counties. Mr. Knight, then President of the Horticultural Society, writing in 1831, when he was seventy-two years of age, says—

"I can just recollect the time when the Potato was unknown to the peasantry of Herefordshire, whose gardens were then almost exclusively occupied by different varieties of the Cabbage. Their food, at that period, chiefly consisted of bread and cheese, with the produce of their garden, and tea was unknown to them. About sixty years ago, before the Potato was introduced into their gardens, agues had been so extremely prevalent, that the periods in which they, or their families, had been afflicted with that disorder were the eras to which I usually heard them refer in speaking of past events; and I recollect being cautioned by them frequently not to stand exposed to the sun in May, lest I should get an ague.

"The Potato was then cultivated in small quantities in the gardens of gentlemen; but it was not thought to afford wholesome nutriment, and was supposed by many to possess deleterious qualities.

"The prejudices of all parties, however, disappeared so rapidly, that within ten years the Potato had almost wholly driven the Cabbage from the garden of the cottagers."—(*Knight's Papers*, 319).—G.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Loosen the surface of the soil amongst all growing crops, to admit the air and otherwise sweeten it. It is a very good plan in planting-out subjects that are at all tender at an uncertain season, to throw up the ground in good strong ridges running east and west, planting on the south side of the ridge. The plants are thus sheltered from the north winds, and fully exposed to the sun. Prepare stations for *Cauliflowers* and *Lettuces* that have been wintered under glass, selecting a sheltered deep rich piece of ground. *Basil* and *Marjoram* may now be sown in pans in a hothouse. Ground should be prepared for *Carrots*, *Parsnips*, and *Onions*. Trench and otherwise prepare ground for plantations of *Rhubarb* and *Sea-kale*. Plant the principal crop of Ashleaf or other early *Potatoes*. Make fresh plantations of Sorrel, of which the large French Sorrel is much the best.

FRUIT GARDEN.

Should the weather continue mild the wall trees will require nailing and pruning. Where canvas cannot be obtained, fir boughs or wooden copings should be employed to ward off the effects of frosts, which an early spring renders both probable and dangerous. Clear away dead leaves from Strawberry plants, and remove superfluous runners from the Alpine Strawberry. All should not be removed, as the runners generally bear better than the old seedling plants. Gooseberries, Currants, Filberts, and all standard fruit trees ought to be kept clear in the centre, so as to have a full surface exposed to light inside as well as outside.

FLOWER GARDEN.

Proceed with Rose-pruning, many sorts of which the late mild weather has already advanced; an exception, however, may be made of Roses recently moved. Plant and lay Rhododendrons. Trained Magnolias should be secured to the wall, and Pomegranates and tender shrubs uncovered. Conifers may be planted-out or removed. Edgings required for flower-beds (such as Box, Thrift, Daisies), should at once be planted, and Box edgings cut. Plant Pinks, Pansies, and Carnations. The laying of turf should be gone on with, and all planting and pruning completed for the present. The Dahlias are now in full course of propagation with the large growers for sale. The amateur may strike the young shoots in a common hot-bed, which, if properly managed, is easily accomplished. The first thick shoots do not emit roots so well as those which are more slender; but, generally speaking, for small establishments it is the best plan to start the roots in heat, and then divide them, each division having a shoot attached to it. We are glad to find that the merits of fancy Dahlias are now more appreciated. Most certainly they have improved much in form, and what we now want is a dwarf race not exceeding 2 feet in height, for, as they now grow, their large size and coarse growth necessarily exclude them from small gardens. Mild showers occasionally would be of service to Auriculas, and when grown in wooden frames, a brick placed under each corner whilst the weather is open would contribute to their health and well-doing. Some people top-dress their plants with rich and stimulating soil at this period, but we do not admire the system of adding anything stronger than thoroughly-decomposed cowdung mixed with an equal bulk of decayed leaves. This will grow them well without any risk of poisoning the plants. Ranunculuses may now be planted whenever the soil is sufficiently dry. Place them in rows about 6 inches apart, 4 inches from root to root, and cover them with 3 inches of soil. The seed should be sown in thoroughly-drained pans or boxes, filled with fine sandy soil and leaf mould. Water this well the night previous to sowing, scatter the seed on the surface thickly, and cover very thinly; then dip a brush in water and sprinkle the soil, so that no seeds are uncovered, and then place them in a cold frame from which frost is carefully excluded.

GREENHOUSE AND CONSERVATORY.

No time should be lost in cleaning and pruning the plants occupying the beds in the conservatory, if the season of flowering is to be retarded; but pruning may be performed later. Orange trees, Lemons, Citrons, Limes, and Shaddocks should be cleaned and top-dressed. Fuchsias should be allowed to grow, and cuttings obtained as soon as the shoots are sufficiently forward. Pot Pelargoniums, Cinerarias, and Calceolarias, and keep them close for a day or two after the operation. Green fly must be repressed by fumigation. Pot Verbenas to supply cuttings. Heliotropes may also be placed in heat for the same purpose. Cut those Heaths that have finished flowering, and clear away all dead flowers. Give air freely both night and day, but do not allow a sudden cold easterly wind to sear and scorch up the plants. The many beautiful New Holland plants may be expected in full flower at this time. Be very careful for a short time in the application of water to plants that have about finished flowering. The mode of airing as directed for Heaths cut back, such as Epacris and Pimeleas that are going out of flower, holds good.

STOVE.

Prepare a dung pit or frame for the growth of young stock of stove plants, and when the heat is sweet and wholesome place 2 or 3 inches of cinder ashes over the bed, and as soon as these are warmed the place will be ready for the reception of the plants. In places where the more modern method of growing plants over tank heat is pursued, it will be well to secure the assistance of a little well-fermented dung to plunge the pots in. I find dung heat will recover plants which, under any other treatment, would inevitably perish. Some good stocky plants of Clerodendrons and Ixoras should be potted and placed in a hotbed of dung. The former delight in a free open soil, consisting of loam, peat, and leaf mould, with a little rotten cow dung, and some charcoal and silver sand, whilst the Ixoras flourish in pure turfy peat with charcoal and gritty sand. If the plants are well rooted give a liberal shift, but do not overdo it. In addition to these plants may be named Dipladenia splendens, Cyrtoceras reflexum, Allamanda cathartica and A. grandiflora, Lucnlia gratissima and L. Pinceana, Gardenias, Schubertia graveolens, Stephanotis, &c. The showy Impatiens Jerdoniæ should also be encouraged by every possible means to make wood, and should be propagated as quickly and freely as possible, for it is just the plant that is wanted for autumn decoration, as are such softwooded plants as Gesneras, Achimenes, &c. In the management of the pit or house keep a fine growing heat of from 60° to 70°; shut it up early in the afternoon, but open the sashes a little before leaving it for the night.

PITS AND FRAMES.

Attend carefully to the stock of bedding plants, and get rooted cuttings potted-off as soon as they are in a fit state for that purpose, encouraging them with a gentle bottom heat and careful management to make quick growth, for after this season there is no time to be lost with young stock. Tender annuals must now receive attention. Heat is indispensable to the raising of these, though not necessary to flowering them. Begin sowing this month, and continue to the end of April in pans placed close to the glass, in a temperature of from 60° to

65°. Keep the soil moist, and shade from bright sunshine. Great care must be exercised to prevent the plants from damping-off or getting "drawn" from want of air. As soon as they can be handled prick-off singly into small pots, or place them round the edge of a 4-inch pot, plunging them in a gentle heat till they can be safely trusted in the open borders. They may also be pricked-out in rows in a spent hotbed, shaded carefully, and give plenty of air when the weather will permit of it. It is of the greatest importance to sow early to secure fine plants and a profusion of bloom.—W. Keane.

DOINGS OF THE LAST WEEK.

By placing our earth in narrow stacks and thatching them with turf, we generally obtain it dry and sweet enough for using a year after being so treated. Finely broken charred rubbish, with lime and soot, will be found effectual in keeping away all obnoxious animals from those spots where they are likely to do harm. Stirred the surface soil among vegetables, sowed Beans and Peas, and prepared the ground intended for roots and Onions. Potatoes we shall plant as soon as the soil is more mellow and drier. If the weather continue to be wet sow them in shallow drills, and cover them with such dry sifted material as charred rubbish.

FRUIT GARDEN.

Pruning should be done now, as trees are likely to be weakened if it is put off until late. Wash the earliest Pears and Cherries, by means of an ordinary syringe, with a solution of quicklime to keep the birds away. We are keeping back our orchard-house trees as much as possible, by giving them air both by day, and by night so long as we can do so with safety. Soft soap and quassia water will destroy the Aphis persicæ should it make its appearance. The smoke formed by burning tobacco and bruised laurel leaves together will be found very effective; but there should be but few air-holes for it to escape by, and great care should be taken, by covering with damp moss, that it does not break into a flame, as thence comes the hot smoke that injures the plants. This treatment is generally very successful, as the prussic acid of the laurel and the nicotine of the tobacco, being conveyed into every little nook by means of the smoke, are doubly fatal to the insects. It is better to do it when the buds are just swelling, as the trees will stand it better than when they are in leaf and the young fruit is just set. We prefer several slight smokings to one heavy one, as the latter is likely to do harm. To thoroughly clean an empty house the old lime should be washed off by scrubbing and using boiling water, and new put on so as to fill up all cracks which might serve as harbours for insects or their eggs. We generally mix a little lampblack with the whitewash to lessen its brightness, and thus reduce the reflection of heat from the wall, which is sometimes so powerful as to cause burning. A mixture of softsoap water and sulphur laid along the top part of the back wall will also be found of use for keeping away insects.

We have not tried to obtain fruit from Strawberry plants very early, and have therefore had scarcely a blind plant. No water should be allowed to remain in the saucer before the fruit begins to swell; indeed it would perhaps be better if beginners kept their plants altogether on boards.

ORNAMENTAL DEPARTMENT.

It is better to keep for a year or two young plants which have been just bought, and transplant them to their positions when wanted, instead of doing so directly they arrive. In the description of the manner of fixing trees by means of fir poles (page 155) the word "driven" was incorrectly substituted for the simple one "sunk"—that is, the young Firs are taken up as roughly as they can be brought away, and placed just as they are in holes triangularly around the tree that is to be secured. This does away with all the trouble of "driving them in," and they, as a rule, last much longer than those which are so fixed. Should the ground be soft the base of the supports can be steadied by stones placed on the outside of them, if the smaller ends are joined to stem of the tree. For smaller trees with only one pole the same plan may be persisted in—that is, the solitary support should be placed in a hole 3 or 4 feet from the tree in a contrary direction to the prevailing wind. Even in this case it is more effectual than if it were driven into the ground near the bole of the tree.

Fuchsias.—We repotted and placed in slight bottom heat small plants just breaking. Large ones kept in a dark shed had broken so freely as to require pruning and then repotting in fresh soil. Such plants kept in the dark should be stopped back rather than pruned, if their owners wish to have a good display of flowers with but little trouble.

Scarlet Geraniums.—Put well-top-dressed plants in a little dry heat to obtain flowers for cutting. We have found this tribe invaluable throughout the winter.

Pelargoniums, Florists' and Fancy.—The most forward ones which we want to blow early will not be repotted, but accelerated by means of manure water as soon as the flower-trusses show. The next lot we will repot shortly without stopping them, whilst the next we will stop once more, after which the younger plants will come in.

Kept dividing and repotting Ferns.

Chrysanthemums.—We will take off cuttings of these in a few days, as it is well to get the plants forward for early flowering. Will make preparations for sowing seeds and striking numbers of plants next week. In such dull weather as we have had cuttings are apt to come weak even with air. The chief thing is to get them to root downwards without drawing upwards thin and weak.

Bulbs seem to bloom more easily than usual this season, requiring less heat than ordinary to bring them in early. I find it is best to harden-off Hyacinths as soon as a few flowers are expanded at the base, so that when removed to a room or a house they continue to open, and therefore remain pleasing for a longer time than when taken when in perfection.

Camellias in flower and opening their buds should be assisted with weak manure. There are many opinions as to the best time of potting them. On the whole, we prefer examining them just when they begin to grow a little after they have done flowering.—R. F.

TRADE CATALOGUES RECEIVED.

Harrison & Sons, Leicester.—*Select Seed Catalogue.*

Laird & Sinclair, Dundee.—*Vegetable and Flower Seeds, &c.*

W. S. Boulton & Co., Rose Lane Works, Norwich.—*Descriptive Catalogue of Lawn Mowers, Wire Netting, Implements, &c.*

Alban Goodman, Londonderry.—*Descriptive Catalogue of Vegetable, Flower, and Farm Seeds.—Descriptive Catalogue of Roses, Fruit Trees, Vines, Flowering Shrubs, &c.*

TO CORRESPONDENTS.

N.B.—Many questions must remain unanswered until next week.

Books (*E. M. L.*).—There is no elementary book on gardening with coloured illustrations, nor is such a book needed. Our "Garden Manual" details the cultivation needed. (*R. H. C.*).—We never heard of such a sixpenny book on butterflies. (*W. Weston*).—The "Handbook of British Plants," by Mr. Notcutt, we think will suit you.

Seedling Cineraria (*I. W. D.*).—The colour is very rich, and petals (florets) stout and free from notch, but we can say no more from seeing a single pip.

Sooly Qua Cucumber (*Cumberland*).—It may be cultivated like any other variety. See page 130 of our present volume.

Dissolving Bones (*F. Corbold*).—The meaning of "unleached" is explained in answer to another correspondent. If sulphuric acid is used instead of the alkaline ashes, the best vessel to dissolve the bones in is an old hogshead that is watertight. You will require a weight of sulphuric acid equal to one-half that of the bones. The finer the bones are, the sooner will they dissolve.

Watercresses (*R. H. C.*).—You must use offsets. The mode of culture is described in our No. 474.

Unleached Ashes (*Bung*).—Wood ashes that have not had the alkali washed out of them are intended.

Maiden Peach in a Pot (*A Young Beginner*).—Shorten the side shoots to 9 inches and the leader one-third, and if you pinch the young shoots judiciously this summer you will have fruit next year.

Hardy Conifers (*Subscriber*).—Gordon's "The Pinetum" will suit you.

Plants near Laurel Hedge (*A Constant Subscriber*).—In so narrow a border as 1½ foot we do not think anything will grow, and we should only have a marginal line of Vinca elegantissima, which would contrast well with the green of the Laurel. It is of little use attempting anything in the way of flowers where rabbits are so destructive, but you may have Geraniums in the border in summer. If the border had had an east or west aspect we should have advised Primroses, Oxlips, and Violets, and they would do on the south if they were shaded with grass in summer.

Salt for Asparagus (*R. T. S.*).—We consider two dressings quite sufficient—namely, one about the middle of March, and another the second or third week in May, each at the rate of half a pound per square yard.

Violets for Succession (*Idem*).—We grow the Single Russian, Czar, Double Russian, Reine des Violets, King of Violets, Devoniensis, and Neapolitan. These include early and late kinds.

Cineraria Drooping—Potting Achimenes (*Antony*).—This, no doubt, is due to the dry atmosphere caused by the gas, which is very injurious to plant life. Could you not leave the plants in the window? Plant the Achimenes in a pan well drained, and filled with a compost of two parts fibrous loam, one part leaf soil, half a part of silver sand, and the like quantity of sandy peat, sifting and placing the rough over the drainage, and over it the fine soil to within half an inch of the rim. Then place the roots about 1½ inch apart-

and cover half an inch deep with fine soil. Place them in a hotbed, or house with a temperature of from 60° to 65°, and keep the soil just moist. When flowering they may be placed in a cooler house, and should be returned to the warm house to ripen the growth.

BULBS FROM ITALY (*A. M. V.*).—The corms of Cyclamens, and roots of all plants, are best taken up when the leaves begin to fall or turn yellow. Lift them carefully, removing most of the soil, and packing them in dry moss. They are safe for transit if packed in any dry material, the chaff or husk of hemp, or any kind of seed, being suitable.

CYCLAMEN PERSICUM SEED NOT GERMINATING (*J. C. R.*).—Seed sown a month ago will probably yet germinate, but the temperature is rather low to bring up the seedlings quickly. Place the pans in a hotbed, with an atmospheric temperature of 65° at night, and a bottom heat of 70° to 75°, and we think the seedlings will shortly appear. If you wish them to flower well next winter grow them in a hotbed or Cucumber frame during the summer. Last year we had some sown early in April; the plants did not appear for more than a month. They were grown in frames on dung beds throughout the summer, and now we have them in 6-inch pots, with an abundance of fine foliage and flowers, the former finely marbled, and the latter varied in colour, and some sweetly scented.

FRUIT TREE FOR PLANTING AGAINST SOUTH WALL IN YARD (*Glevum*).—You could not have anything more profitable than an Apricot, and the kind we advise is Hemskerk. You can procure of most nurserymen a standard, with a stem from 6 to 8 feet high. Make good preparation for the tree, giving it plenty of good soil, and leaving the surface clear of stones or gravel for about a yard from the stem. It may be necessary to protect the stem of the tree from cattle.

EPACRISES AFTER FLOWERING (*A Constant Subscriber*).—When the flowering is over, or in April, cut the plants back to within an inch or two of the old wood, and in a fortnight place them in a pit or house with a temperature of from 45° to 50°, giving abundance of air, and watering moderately. To induce free breaking afford a rather moist atmosphere. When they have shoots an inch long repot, if necessary, and shade them for a few days until they are re-established; then give abundance of air, and grow them in a pit or airy house, not far from the glass, throughout the summer. We do not find it necessary to thin the shoots; but to give compactness of growth, from the end of June to the middle of July we stop all the shoots to 6 inches in length, and continue the plants in a cold house throughout the summer, the main point being to have the growth well perfected before autumn. To secure this the plants require an abundance of air and light. They must be kept in a well-ventilated greenhouse in winter, and dry, for if close and moist they will start into growth instead of flowering. We think it is a recommendation in Camellias that the flowers are not all expanded at once. You may bring them on more rapidly by giving them a temperature of from 45° to 50° at night—quite sufficient for Camellias.

SEEDS AND CUTTINGS IN A PACKING-CASE (*W. T.*).—You may raise half-hardy annuals in your packing-case, but instead of filling it half full of stable manure we should fill it to within 9 inches of the top, and tread or ram the manure firmly, taking care that it is of a nature not likely to heat very violently, nor give off rank steam. To prevent its doing so it should be thrown into a heap, watered if dry, and turned over after it has been in the heap a week, and again in three or four days, when it may be placed in the case; 4 inches of soil will be sufficient. You may also use it for cuttings, but for that purpose it would be well to have a division across the case—a thin partition of wood will do. Reserve one division for the cuttings, and the other part for the seeds. The cuttings should be kept close and shaded from sun; but the seeds, as soon as the plants appear, will need air and light: hence the necessity for the partition. Cuttings from the country will answer if put in before their vitality is destroyed by delay.

PLANT FOR NORTH-WEST WALL (*H. T.*).—We fear Clematis Jackmani would not succeed well against a wall with a north-west aspect. You may give it a trial. C. Fortunei does well with us on such an exposure, and for covering a large space C. Vitalba does excellently, also Jasminum nudiflorum and Cratægus microphylla. Maréchal Niel Rose would not do. It requires a south or south-west aspect. Ivies are the best covering for such a wall, and we should plant Hedera digitata, H. Helix foliis variegatis, and H. Rægneriana, placing the variegated in centre.

OLD RHODODENDRON AND TREE PÆONY TRANSPLANTING (*An Old Subscriber*).—You can safely remove these, though forty years old, for both move with good balls, which you should take care to preserve. To make success more certain, cut off any irregularity of growth in both, especially the Pæony. As soon after this as the ground is in good order, or during March, transplant them—the earlier the better. Water freely after planting to settle the soil about the roots, and mulch with partially-decayed leaves and old cow dung.

PEACH TREES IN POTS CASTING THEIR BUDS (*Constant Reader*).—It arises from the defective formation of the buds, and may be occasioned by the soil being too dry, or by attacks of red spider. The only remedy is giving a good supply of water, and paying due regard to keeping the roots in a healthy state, and the foliage clean by syringing.

DRESSING FOR FRUIT TREES (*A Weekly Subscriber*).—A good dressing for fruit trees, especially Peaches and Nectarines, may be formed of 4 ozs. soft soap, and tobacco juice, as sold by the manufacturer, one gallon, bringing it to the consistency of thin paint with sulphur vivum. For Vines and the stems of fruit trees it may be used as a thick paint. It does not injure the buds, but in applying it with a brush care should be taken not to dislocate them. The falling of the buds in a previous year was no doubt due to the dressing with the compound you name. All dressings should be applied before the buds begin to swell.

POTTING-OFF ROSE CUTTINGS (*Idem*).—Pot them off now singly in small pots, and place them in the mild hotbed, which will facilitate their rooting. When they are well rooted harden them off, and keep them with slight protection until May, when they may be planted. You could leave them where they are until April, and then pot them off, placing them in a cold frame, and hardening them off for planting out in May. You may, instead, leave them until May, and then plant them out finally, only there is a risk of their failing from the loss of roots, which require very careful treatment; therefore we consider it best to have them established in pots before planting out.

TABLES OR STAGES FOR A VINERY (*R. O. G.*).—Much will depend on whether you intend to make the Vines the principal feature, or, as the vinery opens into the dining-room, whether flowering-plants will not be the main object. By giving the Vines little or no forcing, you can have the house tolerably gay all the dull months of the year without injuring the Vines, and then tender annuals would help to keep up a thin display in summer if the Vines were not too close together overhead. Camellias, Epacrises, Cytisus, Scarlet Geraniums, Chinese Primulas, Cyclamens, herbaceous Calceolarias, Cinerarias, &c., would suit such a house well. For the tables latticed ironwork of almost any suitable width may be procured. It is, however, so apt to rust that if used we would recommend it to be galvanised as the most economical in the end, though much more expensive at first. We have no great favour for iron as a material on which to set plants, it is so easily heated and so quickly cooled. We would prefer open wood trelliswork, say the slats from 1 to 1½ inch thick, from 2½ to 3 inches wide, and with from one-half to three-quarters of an inch opening between them. For neatness the little upright pillars and the cross bearers might be of iron, but we should be quite satisfied if all were wood. We would in the latter case recommend a sill all the length of the table raised one or two bricks deep above the floor, and in that sill mortice and fix the uprights next the path. The cross-pieces would be joined to these, and to the wall at the sides. The front table or wide-sparred shelf should be flat. If you wish to hold as many small plants as possible, then you should have a stage against the back wall, consisting of from three to six shelves. A vast number of small plants may thus be stored in winter. On the other hand, if that back wall now supplied with a trellis of wire is to have the best appearance from the dining-room, we would cover it entirely with Camellias, Oranges, and say one Heliotrope for scent, and if the most were to be made of them, have no stage. Even here a compromise might be made by having a flat trellised table front and back, with a walk between, and a trellis, say 2½ to 3 feet from the floor; then cover the back wall above the table with such plants as the above, or with climbers, and do not use tall plants for the back table. Several houses like yours have had the back wall covered with Camellias planted out, and were gorgeous in winter and spring, and were improved rather than injured by the shade of the Vines, coming naturally without forcing in summer.

FLOWER GARDEN PLANS (*A Young Gardener*).—All the three proposed arrangements are so good that we cannot decide which is the best. We incline, however, to No. 2, and would make no change except substituting Iresine Lindenii for an edging instead of Perilla, as it bears nipping better. We presume your beds are small and will not permit of edging, otherwise the edging makes a good finish. The centre of your group, six clumps, seems to be filled with yellow-tinted-leaved Geraniums, and the centre, the largest of all, with white variegated-leaved Geraniums, as Bijou. If these six beds cannot well be altered, and as you speak of Coleus, then we would fill the centre, 9, with Coleus Verschaffelti, with a band of Bijou Geranium or Centaurea candidissima. Then, were we to go further we would transpose 5 and 13, and use a bright Scarlet Geranium as Emily Moreland or Vesuvius, or a blue Verbena as Blue Perfection, or both mixed. Then 16 and 2 we would, as proposed, plant with Amy Hogg, and 1 and 17 with Mrs. Pollock, edged and mixed with blue Lobelia, pumila or speciosa. This, with the addition of the Coleus, would blend and balance your Coleus better in our opinion.

COMMON GARDEN LILY NOT FLOWERING (*J. Parker*).—The cause of the plants not flowering is, that they are in a very stiff soil and a cold situation. In a light, rich, sandy soil and open situation, sheltered from cutting winds they generally bloom abundantly. Take up the bulbs carefully, remove some of the offsets, and plant them with the ball entire, so that the crown may be at the depth of 3 inches below the surface. If the clumps are very large they may be divided, but this would rather disturb the roots. Rich, well-drained, light soil, with some sandy peat and old cow dung, will grow them well. We think they will flower this year.

TOMATO FOR POTS (*M. G.*).—For growing in pots use Orangefield Dwarf. Sow in a hotbed in March, pot off the seedlings singly when large enough to handle, and shift them into larger pots as their roots increase. From 6-inch pots they may be shifted into 9 or 11-inch pots for fruiting, and be placed in the greenhouse in May. For the wall we advise Hepper's Goliath.

SOWING STOCKS (*Idem*).—The best Stocks for sowing in March or the beginning of April are Dwarf German Ten-week, Pyramidal Large-flowering, and Emperor. Sow them in well-drained pans filled to the rim with a compost of two parts loam, one part leaf soil, and a free admixture of sharp sand. Place them in a gently heated hotbed, and when the seedlings are up admit air freely and keep them near the glass. Water them very carefully, and give plenty of air to prevent damping off. When they show the rough leaves prick them off about three-quarters of an inch apart into a frame over a very slightly heated bed, and give them abundance of air. The Phlox and Dianthus may be treated in the same way, planting them out in May in rich light soil about a foot apart every way.

PLANTS FOR RIBBON BORDER (*Idem*).—In addition to Cerastium, Pyrethrum, and Dell's Beet, you may raise from seed Cineraria maritima, silvery foliage, 1 foot; Oxalis tropæoloides, dark bronze foliage, half a foot; and Perilla nankinensis, bronze-purple foliage, 1½ foot. They should be treated as half-hardy annuals, and planted out at the close of May.

NYMPHÆA ALBA SEED SOWING (*A. A. M.*).—Line the bottom of your fountain with a foot of mud or of strong rich loam, cover this with 18 inches to 2 feet of water, and drop the seeds in at about a foot apart. No covering is necessary for the seed. We should prefer plants to sowing seed, as some time must elapse before the seedlings flower, even should they grow, which is not always to be depended on.

DWARF PEAS (*Ex-Florist*).—For a first crop Maclean's Little Gem, which is only a few days later than the very earliest. It is the best of all the dwarf Peas, and may be sown throughout the season, or from now up to July. Waterloo Dwarf Branching Marrow is an excellent late kind. The Delphiniums may be obtained from the principal florists advertising in our columns.

RED-SKINNED FLOURBALL POTATO (*L. A. X.*).—Our correspondent says it produces very well, but a worse Potato he never tasted; they have not improved with keeping, boil yellow, and instead of a flourball, are something like a ball of soap, and have a very disagreeable taste.

DIGGING BETWEEN RASPBERRY ROWS (*C. S.*).—We have for many years given up the pernicious practice of digging between the rows of Raspberries. Instead of that we give a top-dressing, about 6 inches thick, of rather littery manure in December, and leave it to till it disappears. We cover the whole of the ground between the rows and plants. We pull up the suckers when they are about a foot high, leaving about six or eight of the best to each stool. They bear abundantly, therefore we recommend the practice.

GREENHOUSE PLANTS FOR TABLE DECORATION (*Florist*).—You restrict us to plants that may be grown in a pit during the summer, and a greenhouse during the winter. We would grow Cyclamen persicum varieties largely, and a packet of seed sown now will give rise to what will be fine plants this time next year. Primulas are also fine; Deutzia gracilis and Dielytra spectabilis are good hardy plants that do with slight forcing or a greenhouse; Spiræa japonica, also a hardy plant, with gentle forcing is excellent; Epacrises;

Ericas hyemalis and ciliaris; Epiphyllums on stems about a foot high, and Monochætum ensiferum, are the flowering plants we advise. The only plants we prefer to these are Azaleas, which when neatly trained and not too tall are surpassed by but few flowering plants. Of foliage plants we advise the following, but they must not be large:—Bambusa Fortunei variegata, Chamærops excelsa, Coprosma Baueriana variegata, Corypha australis, Dracæna australis, Eurya latifolia variegata, Isolepis gracilis, Lomatia elegantissima, Sesforthia elegans, Yucca aloifolia variegata, Y. filamentosa and variegata, and Y. quadricolor.

Seeds from Australia (*Nelly*).—Sow all the seeds you have received, and when they come up you can, if you like, retain two of each and dispose of the rest to friends. All will succeed in a greenhouse, and we will give you some information respecting them. 1 and 2, Acacias, are mostly fine yellow-flowered plants. 3, New Zealand Flax (Phormium tenax) is an herbaceous perennial, hardy in some situations, and a fine ornamental greenhouse plant. 4, Lancewood or Grass Tree (Xanthorrhœa hastilis) has a stem like a Palm, with a head formed of long grassy leaves, spreading out and hanging down in elegant curves. 5, Goodia latifolia, greenhouse evergreen shrub, with yellow flowers in early summer. 6, Hakea eucalyptoides, greenhouse evergreen shrub, with white flowers in early summer. 7 We do not know anything of. 8, Callitris, a coniferous tree that may suit as a small plant for a greenhouse. 9 and 10 we are not acquainted with. 11 and 12, Pittosporum undulatum has white and green flowers, sweet-scented; P. nigrescens, brown; both greenhouse evergreen shrubs. 13, Lagenaria is a form of Bottle Gourd that requires to be sown in hotbed and grown on until June, when it may be planted against a fence in a warm situation; it may also be treated like a Vegetable Marrow. 14, Elæocarpus, greenhouse evergreen tree with white flowers. 15, Goni (Adinandra digitata), said in Dr. Hogg's "Vegetable Kingdom" to be the "greatest vegetable wonder of the world." We think, however, the seeds you have under this name are not correct, as it is a native of Senegambia and Guinea. 16, You know, of course, what Clematis is. 17 and 21, We cannot give any account of. 18, Eucalyptus globulus, greenhouse evergreen tree. 19, Hardenbergia, greenhouse evergreen climber with purple flowers. 20, Elæocarpus, evergreen shrubs, requiring a greenhouse. We should sow all in pots well drained, and in a compost of two parts sandy peat, one of light fibrous loam, and a part of sand. Place them in a hotbed of 70° to 75°, keep them just moist, and after the plants show the first pair of rough leaves pot them off singly, but keep them in the hotbed until established; then harden them off, and remove them to the greenhouse.

Woodlice in Sea-kale Pots (*Smash*).—The best remedy for woodlice is to pour boiling water on them where it can be practised, but in your case we should be satisfied with taking off the covers of the pots and dusting with quicklime. We do not know what other means you can adopt without injury to the Sea-kale.

Names of Plants (*H. D. Nash*).—One of the narrower-leaved forms of Eriostemon myoporoides of De Candolle, a well-known greenhouse plant. Native of Australia.

POULTRY, BEE, AND PIGEON CHRONICLE.

TRIMMING BIRDS FOR EXHIBITION.

Men who take third-class tickets yet ride in first-class carriages; men who utter counterfeit coin; men who commit forgery; and men who trim in any way birds they exhibit for prizes, are all felons—their crimes are alike, for they all cunningly and secretly endeavour to benefit themselves by injuring others.

We have spared no one who has been detected in fraudulently trimming his birds, and we have proclaimed the names of the criminals just as we have often hung up thievish magpies to warn their kindred from similar thefts. Yet bird-trimmers, like surviving magpies, are not quite scared from their felonies.

The bird-trimmers, indeed, are rather increasing in number and boldness, so that one of our best authorities has written to us that some stringent measures are needed to protect honest exhibitors. We hold the same opinion, and we recommend all committees to have the following clause inserted in their forms of entry, and beneath which clause each intending exhibitor has to sign his name—

"I hereby agree that if the birds I exhibit are trimmed they shall be forfeited to the Committee, to be sold by them, and the money received for them paid to the funds of the county hospital, or of some other public charity."

POLAND FOWLS.

As a breeder of those beautiful Poland fowls during many years, I cannot refrain from saying a few words in reply to Mr. Boothby's letter. I think it would be much better, if committees of poultry shows cannot afford a separate class for each of the three varieties, to reduce the prizes and entrance fees to enable them to do so. But by all means let us have separate classes, as I think none of the Poland exhibitors wish to see the birds all huddled together in one class, which, besides, would increase the labour of the Judges in making the awards satisfactorily. Like Mr. Boothby, I think that the good, sound, and clear lacing or spangling should not altogether be ignored for the large crest.

With regard to the qualities of the three varieties as egg-producers, I find the White-crested Black the most prolific, and next the Silvers. I should not like to see any of them degenerate at our shows. In my opinion they are the most ornamental fowls that go into a show, and certainly none are more admired by visitors.—J. Dean.

LAST YEAR'S JUDGING—RULES.

Among the regulations of our poultry societies the following was formerly almost invariably inserted:—"Gentlemen of acknowledged ability and judgment will be appointed to award the prizes." It is curious to observe now with what uniformity this rule "has become conspicuous by its absence." The omission of this rule is, I apprehend, one fertile source of the "wide-spread" dissatisfaction alluded to by your correspondent Mr. J. E. Kell. I lately knew an instance of a person sending a really good pen of poultry, in excellent condition, to an exhibition, where they were unnoticed. They had previously been winners in the keenest competition. The owner was dissatisfied, he could attach no blame to the managers, they were protected by their rule, "The decision of the Judge will in all cases be final." The exhibitor must bear the disappointment caused by his indiscretion; he had sent his birds to a show where the prizes had been, awarded shall I say?——no, distributed by a gentleman whose ability and judgment were "unknown to (poultry) fame."

I have for some time past adopted a course, which if generally pursued by exhibitors would, I believe, materially lessen the "wide-spread dissatisfaction." Except under very special circumstances I never enter my poultry for a show where the name of the Judge has not either been announced together with the schedule of prizes, or in an advertisement in the Journal, previous to the day named for receiving the entries. If I entrust valuable poultry to the care of a committee and incur an outlay in entry fees and travelling expenses, I claim as a guarantee of good faith on their part an assurance that the prizes shall be awarded by a competent and able Judge. I have frequently observed that where the name of "our oldest and ablest Judge" has been announced, a large entry and good competition have been the result; on the other hand, when the name of the Judge has been withheld, a species of mistrust has been manifest by a correspondingly meagre entry. I have, I think, showed to demonstration that it is to the mutual interest of both managers and exhibitors that the ablest and most disinterested Judges should be appointed. By the adoption of some such process as I have submitted the "new blood" proposed may exercise a healthy influence on judging, and relieve our most popular Judges in some measure of their onerous duties.

There is yet one stereotyped rule in the list which needs amendment. I have had ocular demonstration of the definition of the words, "None but those actually engaged in the arrangements of the show will be admitted previous to its opening," &c. Presenting myself for admission to an exhibition on one occasion I found I had mistaken the hour; a glass door barred my entry to the room, but did not prevent my observing who were the persons actually engaged in the arrangements. There were the committee and secretaries actively engaged arranging the numbers of the pens, and all honour to them. What a staff of assistants they have! I see several well-known exhibitors, owners who had charge of their specimens, and, "last but not least," the attendants of certain famed poultry-yards. See; one of these latter gentlemen, having carefully ensconsed his favourites in their pen, is "actually engaged." A late consignment of birds remain to be placed in their respective pens. He kindly volunteers his aid. "Be careful of the tail of that Game cock," I could have exclaimed (he was removed from the basket so hastily); but the bustle of those actually engaged and the din of the cocks crowing, &c., would have rendered any advice inaudible. I remain a silent spectator. The time for the arrival of the Judges draws near; the attendant returns to his carefully-attended pen to give the finishing touch; with the daintiest morsels he persuades them to further inflate their well-distended crops (they are of the large variety—a well-filled crop is not without its advantage). A soft clean handkerchief is carefully passed over them, their wings and tails are re-adjusted, and all is ready for the Judges. They are detained a few seconds, two or three baskets have just arrived from a long distance, time enough remains to place them in their pens, and the Judges commence their work. The fine condition of the carefully-attended pen, the contented appearance contributed by a well-filled crop, secure

for them the highest honour. With the limited time at the disposal of the Judges, they are misled by the unfair preference conceded to birds with, perhaps, slipped wings concealed and wry tails during the time they examine them remaining erect; thus they take precedence of the half-famished, late-arrived, but more perfect occupants of the adjoining pen.

To meet this source of complaint a rule ought to be in force compelling all persons, whether owners or attendants, to deliver up their specimens at the doors of the exhibition, and on no pretence ought an exhibitor to be allowed to enter the show before the awards are given.

I endorse every word Mr. Kell uses as to exhibiting against dealers. Only give us an assurance that gentlemen of ability who, like one or two of our oldest Judges, exercise a courteous neutrality to the interest of exhibitors of every grade, and a guarantee that the same measure of advantage will be conceded to all exhibitors alike, and I am sure the result will be that the winning pens will contain the best birds, and that the "wide-spread dissatisfaction" will materially decrease. Unless some such steps be taken to check the system of "touting," which has increased so rapidly of late, many honourable and ardent fanciers will be alienated from the pursuit of a fascinating and pleasant pastime.—Veritas.

NEW BOOK.

The Illustrated Book of Poultry. By L. Wright, *Author of "The Practical Poultry-Keeper," &c. Illustrated with Fifty Coloured Plates of Celebrated Prize Birds of Every Breed, &c.* London: Cassell, Petter, & Galpin.

Most heartily and sincerely do I recommend this work (Part I. of which is now before me) to our poultry-fanciers, breeders, and exhibitors. The size of the number is just that of our Journal—a convenient size; and when the fifty numbers are bound it will form an ornamental as well as suitable book for the drawing-room table. To speak of Mr. Wright's powers as a writer is unnecessary, but he has evidently become even clearer in description than formerly. He begins with a chapter on Houses and Accommodation, giving woodcuts to illustrate his ideas; woodcuts of various yards—the smaller; the larger, as Mr. Tudman's; and the largest, Lady Gwyder's at Stoke Park. Then we have a plan of Mr. Beldon's poultry house, once a factory. All these plans are large in size and well drawn. Chapter II. takes the important subject "The Selection of Stock." This is a thoroughly practical chapter, and deserves being studied by those who are not feather-fanciers or exhibitors, but persons desirous of making an honest penny by poultry; and I venture to think that poultry as a food question will be more and more considered in days when all butcher's meat except pork is at a famine price. Chapter III. speaks of "Feeding and General Treatment of Fowls," in the middle of which the number ends.

And now a special word for the coloured illustrations. They are drawn by Mr. Ludlow, whose spirited and specially life-like and character-giving Pigeon portraits have adorned our pages. I have laid the portraits of the Buff Cochin cock and hen in this No. 1 side by side with every former portrait of the birds published, and it is wonderful how superior they are. Not only the outline is accurate, but the expression of the Cochin face is given with marvellous fidelity. If all the portraits equal these two, fanciers will have accurate models up to which to breed. The type of the work is bold and clear, and the printing goes straight across the page, which is always a gain.

Part I. is to be ready for general distribution with the March magazines. No doubt the work will have a large circulation in both Britain and America. In the latter country poultry is beginning to be specially studied.—Wiltshire Rector.

Poultry and Pigeon Show at Oxford.—It is proposed to hold a Show in Oxford some time in October. It is supported with great zeal by several influential gentlemen. Three cups are already promised. Oxford, from its central situation, and having railway communication with all parts of the country, possesses unusual facilities for fanciers sending their stock. A meeting was held on the 21st, in the Town Hall Buildings, to choose a committee, elect officers, and provide a guarantee fund.

Rabbits at Northampton.—To show we appreciate the energy displayed by the Northampton Committee, I have started a subscription towards an extra cup for Rabbits, to be given as the majority of subscribers think best, and to be competed for by subscribers only, so that, whatever small amount may be given, it will enable them to compete for the cup. Let me at once appeal to all fanciers to help me forward, as the time is getting on. I have, I am happy to say, met with good success, and have the following promises already made:—Mr. J. Boyle, jun., 10*s.*; Mr. A. H. Easten, Hull, 5*s.*; Mr. Charles King, London, 5*s.*; Mr. J. Irving, Blackburn, 5*s.*; the Northampton Committee, 7*s.* 6*d.* All subscriptions to be forwarded to—Mr. J. Boyle, jun., *Blackburn, Lancashire.*

SILVER DRAGOON PIGEONS.

Having been requested by several fanciers to state my opinion on the colour of the bar of a Silver Dragoon, I emphatically state it should be dark brown. In support of this the winning birds at the following Shows were Silvers, and had dark brown bars—namely, Birmingham, Any other colour class, first 1867 and 1868, first and second 1869 and 1870, first 1871 (Silver class); first Manchester 1867, Blue or Silver; first Wolverhampton 1868; first Bristol 1870; second Aberdeen 1870; second and highly commended Southampton 1871; second Portsmouth 1872. At the last five Shows all colours competed together. If this is any precedent to go by, and certainly it must be, then brown, and not black, is the proper colour for the bar of a Silver Dragoon. Surely no one will say that the whole of the gentlemen who have judged these Shows gave prizes to birds that have had wrong-coloured bars?

Further, I have for the last six years confined myself, as regards Dragoons, to breeding Silvers, and my experience is, that to produce a bird with a light body (nearly white) it is next to an impossibility to obtain the black bar. Moreover, the winning birds at such Shows as those I have enumerated, especially when shown by leading men, are often purchased by fanciers as stock birds, and when pairing like to like, or even crossing the Silver and a Blue, their progeny to a certainty have brown bars; and as the Silver is acknowledged as a distinct colour, and at Birmingham has a separate class, I maintain that a Silver should be as distinct, and as far from a Blue as a Yellow is from a White.—H. Allsop, *Birmingham.*

MELROSE POULTRY SHOW.

The sixth annual Show of the Waverley Association was held in the Corn Exchange, Melrose, on the 15th and 16th inst. The Hall is well lighted from the roof and very suitable for the purpose. It was quite full of birds, and although some showed signs of the severe treatment they have had during the season, the quality was, as a rule, very good.

Adult *Dorkings* were at the head of the list, and the first prize was awarded to a fine pair of Dark Greys, which also won the cup, the second prize going to Silvers, which were correct in all points. In the young class the prizes were awarded in the same order, both winning pens standing clear of all the rest. The *Spanish* class was for birds of any age. The first prize went to an excellent pair of chickens, and the second to adult birds; the cockerel in the first-named pen was extremely good. In *Cochins* the cocks were by far the best. The hens did not show so well, but the cup for these and the *Brahmas* was awarded to the first-prize Buffs. Only the winning Brahmas were of high merit. The second-prize cock was too yellow. In *Game* both the winners were Black Reds, the second-prize pair being best in quality, but sadly out of feather in tail. In single Game cocks the first was a Pile cockerel, and the second a Black Red cock; the quality of both was all that could be desired, and the contest for honours keen. The entries of Golden-spangled *Hamburghs* were not numerous, but there were some good birds, notably the first-prize pen; the hen in this pair was of extraordinary merit. The Silver-spangled were more or less out of condition, but the Pencilled, which were of both colours, were exceedingly good. The first-prize birds were Golden, as nearly as possible faultless, and the second prize went to Silvers. The piece of plate for Hamburghs was awarded here. In the "Variety" class Crêve-Coeurs were first, and Silver Polands second, both pens being very good; the cock in the first-prize pen was such as is seldom equalled.

All the *Bantam* classes were large, but many of the birds would have been quite as well on their walks. In Black Red Game the winners were very good, and were the only pens that were placed at a disadvantage as to light. In the "Variety" class, Piles won both prizes, the first-prize pens being chickens of extraordinary merit, and the piece of plate was won by them. In the Bantams, any other variety, Blacks were first and Japanese second. Among single cocks, Black Red Game was first, and a pure Silver Sebright second.

The Aylesbury and Rouen *Ducks* were good. The piece of

plate went to Rouens; but in the "Variety" class many of the pens were empty at the time the awards were made. In both the selling and cottagers' classes many good specimens were shown, more particularly in the latter class.

In *Pigeons* the competition was very close in most of the classes, that for Fantails being such as is rarely excelled, although with one exception there was nothing of note in the Nuns, and the timepiece was awarded to the Fantails. Pouters and Jacobins competed together for a piece of plate, which was won by a capital pen of Reds of the latter variety. The Pouters were neither in good show nor clean, except the second-prize birds, which were very runtish in appearance. Turbits were not so good as we usually find at Melrose, though the first-prize Yellows were very good. The English Owls were good throughout, and won the cup from the Turbits. Tumblers made a close run for the position. Two excellent pens of Almonds divided the honours, and the "Variety" class gave evident proof of the need of revision of the schedule, no less than eleven different varieties competing.

There was a nice show of cage birds, but the entries were not numerous.

DORKINGS.—1 and Cup, J. W. Will, Errol. 2, D. Hardie, Priesthaugh, Hawick *hc*, D. Hardie; T. Raines, Stirling; D. W. Gellatly, Meigle; T. H. Heys.

DORKINGS.—*Chickens.*—1 and *hc*, T. Raines. 2, D. Hardie. *c*, Miss Milne, Otterburn.

SPANISH.—1, D. Waugh, Melrose. 2, H. Wilkinson, Earby, Skipton. *hc*, D. Waugh; R. Dickie, Burnside, Alva, Stirling. *c*, J. Tbresh, Bradford.

COCHIN-CHINA.—1 and Cup, J. W. Will. 2, J. W. Taylor, Low Mills, Ulverstone. *hc*, J. Jamieson, Jedburgh; R. Reid, Hollenhirst, Canonbie; E. Fearon, Whitehaven.

BRAHMA POOTRA.—1, R. Brownlie, Townsend, Kirkcaldy. 2, T. Raines. *hc*, J. W. Will; J. W. Brockbank, The Croft, Kirksanton.

GAME.—1, J. Brough, Carlisle. 2, J. W Will. *hc*, R. Little, Dilkatree, Longtown; J. Campbell, Langholm; S. M'Coll, Glasgow.

GAME (Any variety).—*Cock.*—1 and Cup, J. W. Will. 2, J. Brough. *hc*, A. Dewar, Linton, Cluny, Aberheen. *c*, W. Scott, Jedburgh.

HAMBURGHS (Golden-spangled).—1, R. Dickson, Selkirk. 2, R. H. Ashton, Mottram, Manchester. *hc*, J. W. Will. *c*, Mrs. B. Sweeten, Penrith.

HAMBURGHS (Silver-spangled).—1, W. R. Park, Abbotsmeadow, Melrose. 2, Ashton & Booth, Broadbottom, Mottram. *hc*, J. W. Will.

HAMBURGHS (Gold or Silver-pencilled).—1 and Cup, W. R. Park. 2, J. Webster, Weirgate, Killbrook, West Colne. *hc*, W. Clayton, Keighley; J. W. Will; W. Linton, Selkirk; D. Cheyne, Cowpen; R. Dickson, Selkirk.

GAME BANTAMS (Black Red).—1, D. Hardie. 2, A. Hutton, Carolside, Earlston. *hc*, T. Raines; W. Rogers, Sunderland; R. Brownlie, Townsend, Kirkcaldy. *c*, G. M'Millan, Jedburgh; Miss J. M. Frew, Sinclairton, Kirkcaldy.

GAME BANTAMS (Any other variety).—1 and Cup, R. Brownlie. 2, J. Archibald, Earlston (Pile). *hc*, J. Robson, Bishop Auckland; J. W. Brockbank, Kirksanton (Duckwing); W. Bogie, Melrose (Brown Red).

BANTAMS (Any variety).—Cup, R. H. Ashton (Black). 2, J. Archibald (Japanese). *hc*, W. H. Robinson, Long Lee, Keighley (Black); T. Watson, Freeland, Bridge of Earn (Silver (Sebright); R. H. Ashton (Black); Master A. Frew, Sinclairton, Kirkcaldy; Lord Polwarth, Mertoun. *c*, R. Frew; Miss B. P. Frew.

BANTAMS (Any variety).—*Cock.*—Cup, R. Brownlie, Kirkcaldy (Black Red). 2, A. Johnstone, Bathgate (Silver-laced). *hc*, H. H. Thomson, The Oaks, Sunderland (Black Red) (2); J. Bone, Craigaford, Earlston (Japanese); R. Brownlie, Kirkcaldy (Pile).

DUCKS (Aylesbury).—1 and 2, D. Hardie, Priesthaugh, Hawick. *hc*, G. Dryden, Selkirk; J. Brodie, Pahacehill; C. Little, Woodhouselees Smithy, Canonbie.

DUCKS (Rouen).—1, Cup, 2, and *c*, D. Hardie. *hc*, H. Stephenson, Lillyford.

DUCKS (Any other variety).—1 and 2, R. H. Ashton. *c*, Lord Polwarth, Mertoun.

ANY OTHER VARIETY.—1 and Plate, W. R. Park (Crève-Cœur). 2, W. Bearpark, Ainderby Steeple, Northallerton (Silver Polands). *hc*, J. F. Fawcett.

SELLING CLASS.—1, W. Linton, Selkirk (Crève-Cœur). 2, D. Hardie (Dark Dorkings). *hc*, R. H. Ashton; A. Steele, Kelso (Dorkings); W. R. Park (Silver-spangled). *c*, J. W. Will.

COTTAGERS' CLASS.—1 and Timepiece, Mrs. Waugh, Melrose (Spanish). 2, G. Mitchell, Keighley (Silver-spangled Hamburgh). *hc*, J. Beattie, Kirk, Selkirk (Brahma Pootra); R. Mason, Barrhead (Dorkings); W. Linton, Selkirk (Golden-pencilled Hamburgh).

TURKEYS.—Plate, D. Hardie. 2, J. Anderson, Friarshall, Melrose. *hc*, Lord Polwarth.

PIGEONS.

FANTAILS.—1 and Timepiece, J. F. Loversidge, Newark-on-Trent. 2, M. Crosbie, Abbotsmeadow. Equal 2, A. Johnstone, Bathgate. *hc*, Miss J. Thomson, Fernhill, Bingley; J. F. Loversidge. *c*, J. W. Watson, Bradford; H. Yardley, Birmingham.

NUNS.—1, J. Turnbull, Melrose. 2, H. Scott, Gattonside. *hc*, G. Imrie, Bourtree, Ayr. *c*, T. Honeyman, Melrose; T. Lockhart, Kirkcaldy; J. Walker.

POUTERS.—1, M'Gill Skinner, Edinburgh. 2, H. Yardley. *hc*, F. M'Crae, Aberdeen; M'Gill Skinner.

JACOBINS.—1 and Plate, Miss J. Thomson. 2, H. Yardley. *hc*, Miss R. C. Frew.

TURBITS.—1, J. W. Watson. 2, M. Crosbie. *hc*, A. C. Laug, Selkirk; W. Goddard, London; H. Yardley.

OWLS (English).—1 and Plate, M. Crosbie. 2, W. Goddard, London. *hc*, J. Turnbull; E. Paterson.

TUMBLERS.—1, A. Johnstone. 2, W. Goddard. *hc*, W. Brydone, Lanton Mains, Dunse; F. M'Crae; J. W. Watson; H. Yardley. *c*, M'Gill Skinner.

ANY OTHER VARIETY.—1 and Plate, M. Crosbie (Letz). 2, H. Yardley. *hc*, Miss J. Thomson (Carriers); J. Webster (Dragoons); J. Turnbull (Trumpeters); W. Goddard (Carriers and Frillbacks); M. Crosbie (Black Swallows). *c*, Miss J. Thomson; A. Johnstone; J. Fawcett.

SELLING CLASS.—1 and 2, M. Crosbie.

CAGE BIRDS.

DONS (Yellow).—1, R. Hunter, Galashiels. 2, J. Hardie, Galashiels. *hc*, W. Turnbull; Miss Isaac, Melrose.

DONS (Buff).—1, R. Hunter. 2, J. Hardie. *hc*, G. Park, Galashiels. *c*, A. M'Lean, Melrose.

FLECKED (Yellow).—1, R. Hunter. 2 and *hc*, T. Wilson, Hawick.

FLECKED DON (Buff).—1, G. Park. 2, T. Wilson, Hawick. *hc*, W. Bogie. *c*, R. Hunter.

CAGE BIRD.—1 and *c*, R. Paterson. 2, J. Crawford, Melrose. *hc*, W. Douglas.

CANARY (Common).—1 and 2, W. Hatton, Purdon's Crook. *hc*, E. Waugh, Melrose.

The Judge was Mr. E. Hutton, Pudsey, Leeds.

GERMAN BEE-KEEPERS' CONVENTION.—At the seventeenth annual meeting of German bee-keepers held in the city of Kiel, in Holstein, Salzburgh in Bavaria was chosen as the place of meeting in 1872. The city of Halle was named as a desirable place for the meeting of 1873.

CRYSTAL PALACE BIRD SHOW.

IN RE FAST COLOURS—EXTRAORDINARY PROCEEDINGS.

I FEEL almost inclined to dismiss the Norwich classes without further comment than I made in my necessarily brief notice of last week. The champion birds of the season have held pretty much the same relative positions throughout, subject occasionally to some slight variation according to the ideas of different Judges. Quality will always find its way to the front, and it must have been gratifying to many exhibitors, who have supported nearly all the minor meetings of the year, to find that their public running has been no fluke, but that in the great race they have run very forward, and in not a few instances have distinguished themselves by graduating in high honours.

But I cannot conscientiously pass on from this deservedly admired class of birds without adverting to some circumstances with which the great Show of 1872 will be ever associated. And I the more readily approach the matter because I am to some extent concerned in it. Any shirking of the question would be pusillanimous, while a ventilation of the subject will be for the best interests of a fancy whose growing claims are acknowledged by an ever-widening circle of admirers. Almost every year sees some secession from the ranks, though fresh recruits are always found to fill the vacancies. Causes beyond our ken affect many. They retire, we don't know why, but they retire from the field. Death removes others, and the name of at least one veteran is missing from our catalogue this year. His mantle, however, seems to have fallen on his sons, and it is only for them to emulate their father to leave behind them a good name. But the main cause of defection is the unpleasant conviction forced upon the minds of some that "things are not what they seem," a truism, of which a practical exemplification is by no means rare. I could point to more than one, or two, or three who can tell of long prices freely paid for birds with first-class diplomas, which, in many instances (unfortunately in the case of one buyer in *every* instance), turned out impostors of greater or less degree. I cast no reflections on the exhibitors of these birds. Many of them know how birds which they thought perfection turned out the succeeding year, and have explained how they had been made victims of misplaced confidence. And here let me say in passing, how much it behoves every gentleman to carefully examine every specimen which represents perfection, and upon which, its exhibition career being over, he places such a selling price as renders its falling into the hands of a fresh owner highly probable. To find evenly marked birds growing a dark feather on one side of the tail, or a black feather on the shoulder or in the wing, or as many ticks in the back as make a respectable saddle, or to find the cap of a Lizard with a blemish as large as a split pea, or the tail of a Cinnamon growing white feathers where white feathers never grew before, or to hear supposed hens singing lustily, are matters as disagreeable to the seller as the buyer, and, in the case of sensitive minds, eventuate in conclusions by no means conducive to a pleasant state of things.

I am aware these irregularities are not confined to our fancy alone. The "Poultry Chronicle," records of a pursuit essentially English in its character, one of the hobbies peculiarly pertaining to the country gentleman, and graced by the name of many a high-born dame, teem with iniquities which must bring the flush of indignation to the cheek of many of its supporters.

But let us hope that these disagreeables are the remains of an erroneous belief as to right and wrong which, if nothing else will eradicate it, will have to take its fight with those scoundrels who practise its formularies. It is but a faint hope, for my simple conviction is that the whole guild of painters, stainers, tailors, and doctors, in general constitute a section of society which, under a more genial sun, would develope itself into candidates for the treadmill.

I am led to these remarks from the fact of there having been at the late Show some birds which general opinion pronounced to be artificially coloured. There were two Clear Jonques, one Clear Buff, one or two Variegated Jonques, one or two Unevenly Marked Jonques, and four Unevenly Marked Buff. Eight of these birds I exhibited myself at a show which was held here in Sunderland in Christmas week, and thereby hangs a tale! Previous to Cheltenham Show I received a letter from a gentleman residing in one of the midland counties, whose opinion is entitled to the greatest respect, in which, among other matters, he referred to some painted Norwich and Lizards' caps which had come under his notice, and which he said I was to look out for, as I should certainly come across them. Further information I had none, other than some clue as to the whereabouts of these birds, which he remarked jestingly were "creditably" done. How many had been seen, or whether Jonques or Mealy, Clear or Variegated, did not transpire. At Cheltenham I met an extraordinary bird in one

class, to which I awarded the first prize. One of the most noted exhibitors of that class of bird, a man whose opinion is law, and who has carried off several firsts at the Palace this year, was present, and said to me in a friendly way, "Have you not made a mistake with No. ——? My bird beats it out of sight." I knew that upon bringing both to the light he would think differently, and upon doing so he simply said, "I'm satisfied," and there was an end of the matter. Several times during the Show was this bird an object of attraction and curiosity, for the meal *over* the colour was something remarkable. On the second day of the Show I received a letter from my midland county friend, to say he thought No. —— was "one of the lot;" but I was so satisfied about it, and was so supported by the opinions expressed, that on my return home I wrote to the person in whose name it was entered with a view to buying it, but was informed in reply that he had sold it to the person in whose name it and the others appeared at the late Show. Next I had a letter from the holder of these birds to say he had some remarkably fine Norwich birds, the best ever seen in that part of the country, and if I would like a pair he would keep me some, to be delivered after the Palace Show. One letter led to another, and in course of correspondence he said some of these birds had been thrown out at ——, but that the Committee had been over, and upon further examination, and also having seen a portion of them half moulted, had come to the conclusion they were genuine and had tried to buy them. The *reason* of this wish to purchase and the refusal to sell I have since had explained. My midland friend with whom I "shed a tear" at the Palace said, "£10 for four birds was an expensive experiment!" There began my knowledge of the existence of these birds, and my acquaintance with them being limited to the single specimen I had seen at Cheltenham, and the plausible statement made by the present holder.

And now for the story of my exhibiting them. Since I have acted as Judge I have never been an exhibitor, and only once have I ever judged over a bird which had been previously my property, and it was nowhere. But a knot of fanciers who constitute one of the oldest clubs in this town projected a show for Christmas week, and from their rules and regulations expunged the *bonâ-fide* property clause. I have always maintained this rule is sound in principle, but a majority of the Committee of the old Sunderland Ornithological Society thinking it was prejudicial in its action, eliminated it from their thirteenth annual Exhibition. The "fancy" is not young here. On consulting the Secretary I found the rule was omitted purposely, under the belief that it would assist the entries, or, at least, enable any home combination to compete against a foreign confederacy, against which there is no safeguard. This being the case, I intimated my intention of competing for the silver cup, which was one of the attractions of their schedule, and for this purpose borrowed as many birds as I could, and among them these peculiar Norwich, one portion of which arrived the night before, and the remainder before daylight on the morning of the Show. By gaslight they looked—never mind how they looked, but by daylight they looked just exactly as the owner had described them, such as never had been seen "in that part of the country." I was going to say, nor in any oth——, but I should be sorry to cast any reflection on what was, perhaps, a kind intention. When I got a good look at them, I told one of the Committee who was a personal friend of mine, and who had seen the whole of the correspondence, that if the Judges suspected the genuineness of the birds I would like to be sent for that there might be a thorough examination. However, they apparently saw no reason to disqualify them, and the Clear Jonque stood first in its class, and one of the Variegated Jonques first in its class, the Buff birds coming in for a share of commendations. But one of the rules (one which I wrote for our own Society, and which I little dreamt would first be applied in my own case), stated that if clear proof be given that any bird has been fraudulently dealt with, the Judge's decision shall be null and void. And I think it is a good rule, for there are cases in which no mortal eye can detect a fraud, such as the extraction of a single dark feather from the head or back, or any other part, which would convert a Ticked bird, a Mule for instance, into a Clear one, a transformation the value of which is great. Acting on this rule the Committee subjected these birds to an ordeal in which, I think, their zeal rather outran their judgment, and in a way which was hardly constitutional, inasmuch as I was not made aware of what was going on, and only arrived at a knowledge of the fact from finding the Clear Jonque with a tail such as is not usually found on a bird, and being presented with a handkerchief which was alleged to contain colouring matter extracted from the delinquent specimens. As for the existence of colouring matter on the handkerchief, truth compels me to say that neither could I, nor any one person out of at least a score who examined it, find any trace. There was certainly a slight smear of something, a very slight smear, but nothing more than a tinge which can be got from the tail of any bird not absolutely clean, and which is simply the dried excrement which it takes up from the bottom of the cage. This I mention only as the expression of my decided conviction, that such was the character of the smear, if smear it could be called (for subsequent examination conclusively demonstrated the impossibility of discharging colour even by subtle appliances), and not as any expression of opinion as to the fact of the birds not being stained. That I will come to now, and it is the most serious part of the business. From this point I am done with the birds so far as regards being connected with them. Perhaps it was a mistake for me even to have put them on the stages. I think it was.

What I have further to add is by far the most important part of the matter. After the close of the Show I submitted the suspected birds to a skilled analytical chemist, and the result of a two-days analysis was a certificate to the effect that he could detect no trace of any pigment or foreign colouring matter whatever. I know also that they have been tried in many ways by different Judges, but always with the same want of success. Nothing comes off. If I am asked what is my candid opinion of them, I unhesitatingly say I am impelled to the belief that they are artificially coloured. *Fiat justitia, ruat cœlum.* When I say *they*, I mean specially the Jonques, Clear and Variegated. I am not so sceptical about the Buffs, two of which (Variegated) were highly commended by the Judges at Sydenham, though the Clear Buff was ignored. I can conceive the possibility of being able to stain a yellow bird, but by what process of legerdemain a Mealy bird can be dyed, at the same time retaining the meal, I cannot divine. I had some conversation with Mr. Barnesby on the subject. I believe he thinks it perfectly feasible, and showed me some samples of artificially coloured feathers. But they were the large quill feathers of either poultry or Pigeons, were not dyed jonque nor any approximation to it, nor did they show a mealy edge. It is a simple thing to operate on a single large feather; but bearing in mind that the colour on the small feather of a Canary lies on the extremity of the web, which in a Mealy bird is edged with a tiny fringe of white, and further, that it is the close overlapping of the feathers and the projecting of the edges like the scales of a fish, only in a less degree, which produce a uniform shade, it must be next door to an impossibility to colour the entire surface of a bird's plumage and then discharge the colouring matter from the extreme edge of the feathers in such a way as to produce the mealy appearance which is the striking feature in what are recognised as Buff birds. If that can be done, the mystery of the man in the iron mask, the squaring of the circle, the theory of perpetual motion, and the settlement of the Alabama claims, are problems easy of solution.

I believe that hitherto these birds have defied all attempts to discharge foreign colouring matter from them, and here we are treading on most unpleasant ground. A correspondent, a man of education (not the sort of man who carries a mysterious 2-oz. phial in his pocket, and shaking it up assures you, with one eye closed, apparently diving into the mysterious recesses of his brain, and the other winking at some familiar far-off in space, that "this will fetch it off") writes me, "I am sorry you exhibited them, the analyst's certificate notwithstanding, for anything *he* could find had done its work and gone." Is the art of staining birds so that the skill of the analyst is powerless before the knavery of the dyer a *fait accompli?* Is it only when there are too many eggs in the pudding that epicures find fault with the cooking? Can it possibly be that others of these marvellous yellow birds are doctored, and that it is only when some knave cleverer and more enterprising than his fellows ventures to introduce a new shade that his wares are turned out of the market? If it be possible to fix one colour in defiance of every known solvent, why not another? What guarantee is there that our Lizards are not blackened-up and polished, *their caps burnished* (*verb. sap.*), our Cinnamons bronzed, our evenly-marked Canaries and Mules manufactured to order, our Clear Mules bleached, and that half of the whole business is not a sham?

The art of plucking and trimming pales before this new science, which baffles the erudition that can discover a world of existence in a drop of water, can extract from the fœtid oils of gas tar dyes rivalling in brilliancy the hues of the rainbow, or produce eau-de-millefleurs from the drainage of our cow byres. Henceforth the scissors, tweezers, and surgical instruments must give away to the cunning workers in colours.

There is but one cure for this double-dyed scoundrelism. An ardent fancier suggested it to me at the Palace, though I had to some extent anticipated it in the rules of the Cheltenham Show. It is that every suspected bird should be impounded, *nolens volens*, at the will of the executive, and, if proved to be an impostor, the owner should be anything you like—lynched. But proving the fraud is the difficulty. I have had no end of receipts prescribed; liquids, solids, gases, acids, alkalis, from stuff that was warranted to change the skin of an Ethiopian down to the gentle persuasives hidden under cabalistic signs which find no parallel in Fownes, which would "fetch it off" like "snow from a dyke back."

Before dismissing this unpleasant subject I will just say that the reputed owner of these birds is an entire stranger to me. I never saw him till, as I was hurrying down to the train on the

evening of the second day of the Show, I identified a travelling cage coming up the long corridor. I had only time to express a hurried but decided opinion on the birds, in reply to which he asserted he had not bred them himself, they were not stained, and the old story, "they had got nothing off." Nothing can be easier than to prove the first proposition, while on the proof of the second hangs the reputation of the exhibitor. The *onus probandi* lies in a nutshell.

Of Belgians there was a large entry, no less than fifty. I felt satisfied that the amended classification, which included the Clear and Ticked birds in one division, would result in greater numbers being staged. I commenced my examination of the long chain of upwards of a thousand links at either end, and I regret that the limited time at my disposal did not allow of my making that minute inspection of these classes which would warrant my offering other than general remarks upon this most extraordinary Canary. The names of the winning competitors as given in the return of last week, the fact that, in a group of twenty-one, thirteen were deemed worthy of honourable notice, and the whole specially mentioned as forming a very superior class, speak volumes.

I was delighted to see such a muster of "London Fancies." What a pity it is that this *rara avis* is not more cultivated. Anything more beautiful than a first-class specimen of this marvel of Nature it would be hard to find among the varied feathered favourites of our aviaries. I can well understand the conservatism of its admirers, though, like other conservatives, they hail with satisfaction true progress. Mr. Hooke, the Secretary of the London Fancy Club, went over the birds with me, Mr. Waller too, and Mr. McMillin, hardy old veterans, still dark in the stalk though grizzled in the web through repeated moulting, dropped a little of their ancient lore, and a treat it is to sit at the feet of such Gamaliels. Neither of these gentlemen, however, figured as exhibitors this year, an epidemic having decimated their stock and reduced them to the verge of bankruptcy. Deeply wedded are they to the bird they have made a life-long study. The Bank of England may break, the expected comet may come into collision with us, but their motto will ever be, Vivat *the* Fancy! As a whole the Fancies were not up to the standard of previous years, but to look too long at the winning Mealies was to engender a spirit of covetousness.

A great Lizard fancier who name usually figures in the van said to me, "If you send any notice to the Journal say the Lizards were a lot of duffers." That, of course, includes his own. Assuming "duffers" to be a legitimate substantive, from it we get an adjective expressive of the condition of the first-prize Golden-spangled bird. It certainly was in duffing condition, its right wing in particular. It looked as if it had been in the tub, and was all in a heap. A few hours' change of temperature, however, will soon transform a blooming bird into a thing not like itself at all. I had a commission to claim a bird in this class, "but not at ruinous prices." My affections halted between 442, Smith and Preen, and 444, Mr. J. N. Harrison, second and third respectively. I think I should have been disposed to put each up a step. There have been few shows since Whitby at which these champions have not measured swords together, the same two birds always doing battle for the Coventry firm who have brought them out from first to last in the perfection of condition. No. 440, Mr. T. W. Fairbrass, was superbly spangled but defective in cap, and well merited its very high commendation. In this class were two birds with most miraculous caps, so miraculous, indeed, that the Judges evidently doubted their genuineness. I am told I once gave one of them either a highly commended or a commended. If so, I do repent me in sackcloth and ashes. My midland county friend's comment on them was "All in the same swim!" I wonder what he meant? An extract from an unpublished manuscript in my possession reads, "Mr. Blakston know no more about a bird nor a bird know about him!" For a solution of this enigma put this and that together.—W. A. Blakston.

(To be continued.)

NOTES ON BEES.

Having been much absent from home during the last six or seven weeks, and otherwise much engaged, I have been unable to notice various remarks of correspondents of "our Journal" which have appeared in its pages from time to time in the interval. I will now endeavour to make up lee-way by venturing a few observations on Mr. Lowe's paper on "Wintering Bees," page 25 of the current volume.

I observe, first, that while he "does not recommend wintering our bees either in cold, dry, dark cellars, or in burying pits," he has nevertheless given an array of names, including the most eminent bee-keepers of modern times, who have adopted one or other of the modes alluded to "with great success." He tells us that "the celebrated Dzierzon usually winters some of his weaker colonies in dry cellars and they always do well." I will merely remark, therefore, that I hope some of our apiarian friends will not have been deterred by Mr. Lowe's dissuasive from trying the plan of wintering which I ventured to recommend in December last. "Strong stocks," as I said, "are best left to themselves on their summer stances;" but in the case of weak hives, which would certainly have perished in such situations, it is worth trying whether Mr. Hosmer's plan be not a feasible one, and likely to prove a success in this country as well as in America; for, be it observed, that while Mr. Lowe speaks of Mr. Hosmer's theory as "erroneous in principle and entirely delusive," that gentleman assures us that what he recommends is not "theory," but the result of experience.

With regard to "summer-bred" bees my opinion tallies in the main with that of Mr. Lowe. They are probably all gone in active stocks by the middle of November; but surely it is possible, as it is certainly very desirable, to supply their place in rapid succession late in the autumn with a younger and more vigorous generation, and this can always be done by encouraging late breeding. It is just when breeding is going on most vigorously that the succession of population in a hive is most rapid, and then it is that the "old bees" (autumn-bred if you like) are soonest got rid of, and their places supplied by a younger generation, who will live on later into the spring, and help on with better success the early prosperity of the stock. Therefore I do maintain that it is desirable to get rid of summer or early-autumn-bred bees, that it can be done in the way indicated, and in so doing we do not weaken, but on the contrary decidedly strengthen the stock which may be thus treated, and put it into a more favourable condition for early spring progress. If, on the other hand, from any cause late breeding has been discouraged, the hive, being in a state of torpidity, maintains a much larger proportion of old bees, which will live the longer in proportion as they remain at home, and die off in their early spring flights, to the great injury of the stock, owing to the smaller number of young bees it contains than in cases where late breeding has occurred.

Should any of your apiarian readers have made trial perchance of such a mode of wintering their bees, I should be glad to hear with what result. I would gladly have tried it myself if I had had a proper place in which to stow away my hives, for I never had so many weak hives at any period of my bee-keeping life, nor have I ever had so great a mortality. Out of nineteen stocks, eight have died this winter, some from dysentary, others from starvation during my absence from home.—B. & W.

OUR LETTER BOX.

Dorkings Dying (*Lady Subscriber*).—You would render our task easier if you gave us some idea of the run your fowls have, and also the manner in which they are fed. From the fact of their falling ill in the autumn, which is their weakest time, we imagine they are in low condition, and unable to meet the change of atmosphere that takes place at that season. The long rainy time we have had may have taken the same effect now at an earlier period. The condition of the liver you mention is generally caused either by over or injudicious feeding, or by bad roosting places. We have never found it infectious, but where the management was at fault all the fowls in a yard were similarly affected. Bad water is very injurious to fowls, yet they prefer it to any other. Another information is so scanty we will tell you what you should do, and you will then, perhaps, be able to see the cause of your misfortune. The fowls should roost in a dry house or shed completely sheltered from draughts. They should have perches not more than 2 feet from the ground. The floor of the house should be earth, no brick, board, or stone. The food should consist of barleymeal or ground oats soaked with water morning and evening, with a meal of whole corn at midday. This is all they require if they have a grass run. If they have not, you must supply them with green food, sods of earth covered with growing grass, and grit for a dust bath. In any case they must be provided with lime; bricklayers' rubbish is the best. The treatment for the present malady will be pills of camphor, one the size of a garden pea morning and evening. If this will not cure, try Baily's pills. Hinder them, if possible, from drinking dirty stagnant water.

Game Hen not Laying (*Nine-years Subscriber*).—The fact of her avoiding the cock would have nothing to do with her laying, as one is quite independent of the other. Did she come in the basket alone, or was there a cock with her? These things sometimes happen in travelling. Examine her: you will likely find some injury to the back, or it may be there is inflammation of the egg-passages. It is against all rule and precedent for a young hen not to lay if she be at liberty, and we hardly believe in such a case. She may steal her nest, or eat her eggs, or they may be eaten for her, but we believe she lays. In confinement it is somewhat different, and is just possible. The drooping of the wings is a plain indication that something is wrong. We advise that you give castor oil freely, a table-spoonful for a dose, and that you also take a wing-weather and having stripped the lower part near the quill, saturate it thoroughly with castor oil, and pass it down the egg-passage as far as you can. If you repeat this a few times we believe you will find it a beneficial treatment.

Brahma Cock Wheezing (*D. J.*).—Give him a good dose of castor oil, and before you do so put a feather down his throat. He is suffering from the wet weather. Give him two pills of camphor each the size of a garden pea.

Rendering a Hen Broody (*An Amateur*).—We know no justifiable method of making a hen broody; people are, as a rule, far more anxious to prevent them from being so. The old abominable way of trying to make a hen sit, was to pluck all the feathers from her breast, and then whip it with stinging

nettles, or rub it with ointment producing painful itching, to alleviate which she used to press hard down on the cold eggs.

REDCAPS (*An Amateur*).—The last "Redcaps" we saw were at Sheffield; there was a class for them some years ago at that Show. These were so little known to ordinary Judges, that special Judges officiated for them. If we recollect aright, Mr. Halliday bred them in that town.

FOWLS IN CONFINED SPACE (*Nemo*).—You may keep twenty fowls easily in the space, 50 yards by 2 yards. We think Brahmas would suit you best. A 4-feet fence will keep them in, and we think wire the cheapest, because when taken down it cannot be used for firewood. When you have chickens they should go into the kitchen garden. If it is not already done, part of the space you have should be laid down in grass.

PINIONING MANDARIN AND CAROLINA DUCKS (*W. R.*).—These birds cannot be properly kept unless they are pinioned; therefore, it would not disqualify them for exhibiting. It is said a gipsy may be kept tame till he comes in contact with other gipsies, when he immediately joins them, and it is so with every description of wild fowl. You may hatch them from eggs and have them so tame that they will come to your whistle to be fed, and will be your delight all the summer; but when winter comes, and the wild birds are in the air, when they settle among the tame birds in the night, and prepare to leave in the morning, all the tameness disappears, and unless the birds are pinioned they go with the new comers. It would be impossible to exhibit full-winged birds in cages, as when frightened they would fly up and seriously injure themselves. Tameness is greatly induced by the inability to fly. A full-winged bird shut in an aviary covered at top never becomes perfectly tame, but on every occasion beats and dashes himself about; while a pinioned one, after some few attempts at flying, finds it impossible and accepts the situation.

EGG-PRODUCING HAMBURGHS (*F. S. H.*).—There is no difference in properties. Both are equally good layers. If it is near a town the white of the Hamburghs gets sooty, while the Golden do not show it so much. We have a prejudice in favour of the Golden, but we should be troubled to justify it.

GROUND OATS (*J. H.*).—Ground oats are so skilfully prepared in Sussex, that although nothing of any kind is taken from them, not even the husk, they are reduced to so fine flour that they might easily be made into fine paste. It is the fact that the meal contains the whole of the corn, which makes it so nutritious. Fowls have an aversion to very coarse food, and ordinary ground oats when mixed with water have the appearance of sawdust and bran mixed. Often they will not eat it, and we know that Mr. Baily, no mean authority, has given up grinding oats, and buys them in Sussex. In his opinion the bran of wheat is advisable only for animals that have teeth.

JUDICIAL DECISIONS (*W. M. Mann*).—All that you state is not inconsistent with correct judging. The health of fowls, and other circumstances at the time of judging must be known before the awards can be pronounced erroneous.

WHITEHAVEN POULTRY SHOW.—We have letters from Mr. Rollinson and Mr. Lord denying that they trimmed their birds. They must discuss the subject with the Committee, and we will readily publish the result.

DUBLIN POULTRY SHOW (*Reporter*).—We omitted the names merely because they were in the prize list, and we do so always as far as possible to economise space. You inserted the names evidently impartially.

PORTSMOUTH POULTRY SHOW.—The address of Mr. R. Wilkinson who took the second prize for Spangled Hamburghs at this Show, is Waterden Road, Guildford, not Portsea, as printed at page 160. (*T. A. D.*).—Write to the Secretary and ask him to return you postage stamps to the amount you claim. He ought not to have retained the money for the catalogue and yet neglect to send it; but allowances ought to be made for the pressure of business on the Secretary at the show time.

BIRMINGHAM POULTRY SHOW.—A pen of Aylesbury Ducks exhibited at the last show by the Rev. G. Gilbert, of Claxton, Norwich, were highly commended. This was omitted in the prize list by accident.—J. B. LYTHALL, *Sec.*

ALMOND TUMBLERS (*A. Atkins*).—It is in No. 489.

DRAGOON'S EYES (*B. G. S.*).—Get some fuller's earth, make it into a paste with water and put it on the eye, and it will cure it very soon.

FANTAILS AT WOLVERHAMPTON SHOW.—Mr. W. Choyce's and not Mr. Loveridge's pen of Fantails was highly commended.

BARBS AT WOLVERHAMPTON.—"If 'CURIOUS' will give his name and address, I will give him the information that he requires, as I object to anonymous correspondents.—B. R. WRIGHT."

LIGURIAN BEES (*W. C. C.*).—We know of no separate work on their management. We do not think you can do better than apply to Messrs. Neighbour.

QUEEN BEE DEAD (*Jane*).—A lost queen bee at this time of year cannot be replaced. The earliest period at which one could be procured would be towards the end of April. We fear your case is beyond recovery. However, we put your appeal in print. "A lady will be extremely obliged if any kind bee-keeper will send her a queen, for which she will be glad to pay what is asked. The name and address is at the office of this Journal."

BEE MANAGEMENT (*E. M. M.*).—It is not necessary to cut out old comb every season, but the hives should be examined early every spring, and any black, mouldy, or misshapen combs should be cut out. We advise you to do this with yours. It is advisable also to cut away any drone comb which appears to be in excess in the central parts of the hive. To repair old hives of straw appears to us to be useless. Better commit them to the manure heap or the fire. Boxes can be repaired if necessary with the same material.

HIVE PERISHING (*W. J. H.*).—The comb you sent was quite empty, and the accompanying bees were in a stinking condition. There is little doubt that the bees perished of starvation, and have been dead for some time.—EDS.

PRESERVING RABBIT SKINS (*G. R.*).—When the rabbit skins are cleared of all fatty particles that may remain, nail them fur-side downwards upon a board, stretching them to their full extent, and tack them down; then wash them with a solution of 1 oz. of saltpetre to a quart of water twice a-week, and generally three applications will render them fit for use. When removed from the board, roll them up a few times, and they will become soft and flexible. Tanning is resorted to, but is more expensive, and is the work of the furriers or leather-dressers.

CANNIBAL CANARY (*W. Sage*).—The egg-eating propensity is a thing no one can understand. There is no radical cure for it. You may try the experiment of filling an empty shell with cayenne pepper, but the probability is, she will eat the shell and its contents. You are beginning to breed a little too soon. Give the hen a rest, and in the meantime supply her with plenty of shell-producing material in the shape of old lime rubbish.—W. A. BLAKSTON.

ZEBRA LOVE BIRDS (*Edith*).—There are no Zebra Love Birds, the Australian Grass Parrakeets are probably meant. They moult irregularly here, our summer is their winter season. They breed, and even hive out of doors freely in England. They rest in a hole in a tree like other Parrots, and Hawkin sells cocoa-nut nests for them to build or lay in, if placed in a cage. None of the other foreign Finches, &c., mentioned, breed in this climate in confinement.—C. H. F.

TEACHING CANARIES TO PIPE (*A. H. B.*).—I have never attempted the task of teaching any bird to pipe, but the usual way is to begin with a young nestling, which must be confined in the dark or covered up in such a way as to give him little opportunity of having his attention taken off by surrounding objects. If you are a good whistler you can pipe the melody yourself, which should be simple and always whistled from beginning to end without a stop. This occupation is at once delightfully monotonous and well calculated to develope the virtue of patience, at the same time making your family well acquainted with the musical phrases in "The Blue Bells of Scotland," "Over the Water to Charlie," and other melodies in which Bullfinches, Starlings, and other piping birds delight. If you have not confidence in your own musical ability, purchase a bird-organ, which can be had of any musical instrument dealer. You can then take a time at the crank every morning after your breakfast, but before the bird has had his, and when you find he makes a response to your music reward him with a grain or two of hempseed or any delicacy, and leave him a while to study. Repeat the lesson at frequent intervals during the day, and when tired of the crank get somebody else to take a turn. If you persevere with this plan, the prisoner may learn to pipe—or he may not.—W. A. BLAKSTON.

METEOROLOGICAL OBSERVATIONS,

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude 111 feet.

DATE. 1872. Feb.	A.M.				IN THE DAY.					Rain.
	Barometer at 32° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 ft.	Shade Temperature.		Radiation Temperature.		
		Dry	Wet.			Max.	Min.	In sun.	On grass	
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 14	29.764	45.0	44.1	E.	43.8	51.8	41.8	76.6	33.7	—
Th. 15	29.643	42.8	42.4	N.	43.6	47.9	37.5	56.3	34.8	—
Fri. 16	29.777	37.9	36.4	N.W.	43.2	42.0	36.4	46.2	37.3	—
Sat. 17	29.836	39.8	39.2	S.W.	42.3	52.0	34.8	86.2	31.7	0.050
Sun. 18	29.756	46.4	44.4	S.	42.8	50.7	39.9	68.1	37.3	0.080
Mo. 19	29.751	45.0	43.4	S.W.	43.6	59.5	38.5	91.3	34.3	—
Tu. 20	29.913	42.4	41.7	S.	43.2	55.0	36.4	94.1	31.5	—
Means	29.776	42.7	41.5		43.2	51.1	37.8	73.4	35.2	0.130

REMARKS.

14th.—Dark and foggy morning, cloudless for a few hours about noon, and nearly so at night with bright moonlight.

15th.—Overcast almost throughout the day, the only exception being a few gleams of sunshine in the forenoon.

16th.—Overcast with northerly wind and no sun.

17th.—White frost in the morning, and very fine till noon, when it clouded over, and between 3 and 4 P.M. slight rain fell, but most of the rain recorded for this day fell after midnight.

18th.—Rain in early morning, and rather dull all day.

19th.—A few minutes after midnight (0.10 A.M.), a sharp squall from S.W. with heavy rain, and it is reported some hail. The day was fine and sunny. Fine lunar halo for several hours at night.

20th.—Bright fine day, white frost in morning, fine evening.

The week has been slightly cooler than the three previous weeks, but the temperature is, nevertheless, considerably warmer than the average. The temperature in the sun on the 20th was higher than had yet been reached this year.—G. J. SYMONS.

COVENT GARDEN MARKET.—FEBRUARY 21.

THERE is scarcely any alteration to report. Large quantities of rough vegetables come into the market, and the supply of Broccoli from the west of England and the Channel Islands is almost unprecedented at this season. Forced Asparagus, Sea-kale, and Dwarf Kidney Beans are all ample for the demand. French Asparagus is coming in good, but the sale is heavy at prices ranging from 12s. to 18s. per bundle.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples..... ½ sieve	2	0	to 4	0	Melons..... each	0	0	0	0
Apricots..... doz.	0	0	0	0	Mulberries..... lb.	0	0	0	0
Cherries..... lb.	0	0	0	0	Nectarines..... doz.	0	0	0	0
Chestnuts..... bushel	10	0	20	0	Oranges..... ₱100	4	0	10	0
Currants..... ½ sieve	0	0	0	0	Pears, kitchen..... doz.	2	0	4	0
Black..... do.	0	0	0	0	dessert..... doz.	3	0	8	0
Figs..... doz.	0	0	0	0	Pine Apples..... lb.	6	s	10	0
Filberts..... lb.	0	6	1	0	Quinces..... doz.	0	0	0	0
Grapes..... lb.	0	6	1	0	Raspberries..... lb.	0	0	0	0
Grapes, Hothouse... lb.	0	0	12	0	Strawberries..... lb.	0	0	0	0
Gooseberries..... quart	0	0	0	0	Walnuts..... bushel	10	0	25	0
Lemons..... ₱100	7	0	10	0	ditto..... ₱100	1	0	2	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes..... doz.	1	0	to 6	0	Leeks..... bunch	0	3	to 0	0
Asparagus..... ₱100.	2	0	8	0	Lettuce..... doz.	1	0	2	6
Beans, Kidney..... per 100	3	0	6	0	Mushrooms..... pottle	1	0	2	0
Broad..... bushel	0	0	0	0	Mustard & Cress..punnet	0	2	0	0
Beet, Red..... doz.	1	0	3	0	Onions..... bushel	2	0	4	0
Broccoli..... bundle	0	3	1	6	pickling..... quart	0	3	0	0
Brussels Sprouts..½ sieve	1	6	3	0	Parsley per doz. bunches	3	0	4	8
Cabbage..... doz.	1	0	1	8	Parsnips..... doz.	0	9	1	0
Capsicums..... ₱100	0	0	0	0	Peas..... quart	0	0	0	0
Carrots..... bunch	0	6	0	9	Potatoes..... bushel	2	0	3	6
Cauliflowers..... doz.	2	0	6	0	Kidney..... do.	3	0	5	0
Celery..... bundle	1	3	2	0	Radishes.. doz. bunches	0	6	1	0
Coleworts.. doz. bunches	2	0	4	0	Rhubarb..... bundle	0	6	1	3
Cucumbers..... each	1	0	3	0	Savoys..... doz.	0	9	1	6
pickling..... doz.	0	0	0	0	Sea-kale..... basket	1	0	2	0
Endive..... doz.	2	0	4	0	Shallots..... lb.	0	4	0	6
Fennel..... bunch	0	3	0	0	Spinach..... bushel	3	0	4	0
Garlic..... lb.	0	3	0	0	Tomatoes..... doz.	0	0	0	0
Herbs..... bunch	0	3	0	0	Turnips..... bunch	0	3	0	0
Horseradish..... bundle	3	0	4	0	Vegetable Marrows..doz.	0	0	0	6

WEEKLY CALENDAR.

Day of Month	Day of Week	FEB. 29—MARCH 6, 1872.	Average Temperature near London.			Rain in 43 years.	Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	Days.	m. h.	m. h.	m. h.	m. h.	Days.	m. s.	
29	Th	Meeting of Royal Society, 8.30 P.M.	47.6	34.0	40.3	4	59 af 6	37 af 5	47af 11	54 8	20	12 39	60
1	F		47.4	33.6	40.5	16	48 6	39 5	morn.	16 9	21	13 27	61
2	S		48.7	34.7	41.7	17	46 6	40 5	7 1	43 9	☾	12 15	62
3	Sun	3 Sunday in Lent.	49.9	32.2	41.0	14	44 6	42 5	28 2	20 10	23	12 2	63
4	M	Meeting of Entomological Society, 7 P.M.	49.7	31.5	40.6	11	42 6	43 5	42 3	10 11	24	11 48	64
5	Tu	Meeting of Zoological Society, 9 P.M.	48.9	31.8	40.3	16	39 6	45 5	45 4	after	25	11 35	65
6	W	Royal Horticultural Society, Fruit, Floral, and General Meeting.	48.6	32.2	40.4	18	37 6	47 5	35 5	31 1	26	11 20	66

From observations taken near London during forty-three years, the average day temperature of the week is 48.7°; and its night temperature 32.9° The greatest heat was 70°, on the 4th, 1860; and the lowest cold 14°, on the 3rd, 1862. The greatest fall of rain was 0.48 inch.

BROMELIACEOUS PLANTS.—No. 2.

BROMELIA LONGIFOLIA.—Bromelia is the genus which gives the name to the whole order, and it contains several species of great beauty. That now under consideration well deserves a place in every plant stove, or it may be planted in the fernery, where, placed in a suitable position, it forms no mean object, and as its bracts are hard and persistent, the moist atmosphere which it is necessary to maintain does not affect them. The leaves of B. longifolia are usually from 18 to 24 inches in length, somewhat narrow, and armed with long spines;

Bromelia longifolia.

the upper surface is dull green, while beneath they are silvery white. The head of flowers proceeding from the centre of the plant is very dense and bright rose colour, whilst the bracts which accompany them are deep crimson. It usually comes into bloom about the end of July, and retains its full beauty for a long time. Its native country is Guiana; it was introduced to our gardens about 1846.

B. Fernandæ.—This is a plant of quite recent introduction, having been discovered in 1866 by that indefatigable traveller and collector Mr. G. Wallis. It is a native of Para, affecting the forests bordering upon the river Amazon. It flowered for the first time in Europe in 1870, and is beautifully figured in the June number of "L'Illustration Horticole," published under the direction of the distinguished Belgian nurseryman, M. J. Linden, thus affording another proof of my former remark, that the public taste for these plants is decidedly upon the increase. This species is a robust grower, producing long, somewhat narrow, acuminate leaves, which are channelled above and rather distantly toothed with short obtuse spines; they are full dark green on the upper side, tinged below with dull red. The whole plant presents a somewhat vase-like appearance, its long leaves arching, and the upper portion becoming pendulous. The flowers are produced in a large capitate head, and they, or rather the surroundings bracts, have a grand effect; these bracts are very numerous, brilliant carmine red on the upper side, somewhat paler below. This is, undoubtedly, a magnificent plant, and I hope to see it widely distributed when M. J. Linden places it in commerce.

Distiacanthus scarlatinus.—I have no knowledge of this genus, and cannot say in what it differs. This plant was first exhibited in Brussels, I believe in 1867 or 1868—I am not quite sure which—and attracted much attention at that time. Since then I have occasionally seen it, and although it is certainly not amongst the most superb of its class, it is well deserving the attention of all plant-growers who are not limited for room. The plant is of robust growth; the leaves are long and spreading; the flowers do not rise above the foliage, and the chief attraction is the vivid scarlet of the inner leaves, which retain their intensity of colour for a long time. It is a native of the country bordering upon the river Amazon, and enjoys an abundance of heat and moisture.

Bilbergia.

A genus distinguished for numerous beautiful species, many of which exist in our gardens. They may be grown in great perfection on blocks of wood, or in baskets suspended from the roof of the stove; in this way they are frequently grown in verandahs by the inhabitants of Brazil and other parts of South America, their brilliant colours and lasting beauty making them general favourites, even where gay flowers are not rare. However, if it should better suit the taste or convenience of the amateur to have them in pots, there is nothing to prevent this method of cultivation being adopted. The pots must be well drained, and the soil should be two parts fibrous peat to one part of loam, and my previous remarks concerning watering these plants must be followed out if good plants and flowers are looked for.

B. Baraquiniana is a native of the Amazon country, and delights in strong heat. The leaves are somewhat narrow, some 18 inches high, and erect. Like the leaves of all this family, they overlap at the base; they are pendulous at the ends, and in colour bright green, with several transverse bands of powdery white underneath, being, in addition, armed at the edges with red spines. The spikes of flower are pendulous at the upper part, and the stem densely powdered with white. The flowers are green, and the stamens much exserted; these colours, however, are beautifully set-off by the large oblong bracts, which are of a brilliant scarlet. When grown in a basket, and

well established, its numerous gay spikes render it a very attractive object, and as these usually appear early in spring it is all the more valuable.

B. THYRSOIDEA.—This is a magnificent Brazilian species, erect in habit, with numerous broad, clear, bright green leaves, armed at the edges with numerous sharp spines. It is of robust habit, and I prefer to grow it in a pot with rather more loam than usual. The gay inflorescence is erect, both flowers and bract being of an intense rich crimson.

B. MINIATA-ROSEA is another species from the same country as the last-named. I prefer growing it upon a block or in a small basket. The leaves are semi-erect, spreading outwards, and recurved towards the apex, armed at the edges, and light green, overspread with a thin farinose covering. The scape is erect, producing quite a number of flowers of a deep rose colour; the bracts are large, deep red tipped with blue, and suffused with a white farinose powder, which gives it a peculiarly handsome appearance as if clothed with hoar frost.

B. MARMORATA.—This is a very strong-growing kind, which should be grown in a pot or planted in an erect position in a pocket in a rockery; indeed, many species of this order make charming objects in a similar situation. The leaves are broad, regularly armed at the edges with spines, deep green, mottled and blotched with dull red. The scape is erect; the flowers dark blue; the calyx green at the base, but tipped with the same deep blue as the flowers; the bracts large, and, like the stems, of a uniform brilliant scarlet. It is a native of various parts of Brazil.

B. MORELIANA.—Another fine plant from Brazil and South America. The leaves are broad, dark green, banded on the under side with a white farinose powder. The bracts and flowers are extremely handsome; the flowers are deep violet, beautifully set-off by the large persistent rich reddish rose-coloured bracts, which are its chief attraction.—EXPERTO CREDE.

POTATO CULTURE.

THE Potato-planting season is at hand. It is, perhaps, not easy to say anything that is not generally known respecting this the most useful of all root crops. Change of seed is no doubt good, but change of soil is better. At first sight it would appear that one change involves the other; so in one sense it does, but there is a difference. If seed is procured from a brown hazel loamy soil, and planted in a garden of rich black vegetable mould, a benefit is derived by the mere change of seed; but if seed is saved from that black vegetable soil and planted again in the same garden, but in a plot containing a large admixture of fresh field soil, the benefit is still greater, and change of soil is, therefore, better than change of seed. As an instance, I may state that the soil I have to operate on is the dark vegetable mould of a very old garden. For the past six years seed of the same kind has been grown and again planted in the same garden, and each year the crops have been better than in the past. This is a direct result of change of soil. The soil introduced was roadside trimmings and parings, or failing this, a load or two of the garden soil was exchanged for field soil. The practice is mutually beneficial, and as manure is saved, is economical also. It is surprising how soon the staple of an old garden may be improved by steadily carrying out a simple system of exchange of soil. Nothing more fully proves the truth of the old maxim that "exchange is no robbery" than a practice of this kind. The vegetable soil of the garden improves the field, and the field soil the garden. Every year, also, I have had seed grown in the field and planted in the garden, but in no one instance has the produce been so good as from seed grown in the garden and planted in the garden with a good admixture of fresh soil. Fresh soil in an old garden is infinitely better than manure for Potatoes, and, with a limited quantity of manure, for all other crops too. The practice cannot be carried out in all places, but it can in many. Likewise, it cannot be carried out to influence the entire crop of Potatoes. In this event change of seed must be resorted to. There is room for a few words on this subject.

It is a popular notion that seed should be procured from a light sandy soil. That impression is held so strongly and authoritatively that in some districts it amounts to an absolute rule. Now, in general, I do not believe in rules relative to soil, management, and general culture, and at the risk of appearing singular I put aside the notion or rule above stated, lay down another diametrically opposite—that Potatoes for seed should be drawn from a stiff soil, and assert that it is as safe and sound as the old light-soil theory. An inflexible adherence to either theory, however, is not wise. The soil to which the Potatoes have come should be considered as well as the soil whence they come, to rightly determine a change.

On the matter of change of seed I claim a lengthened experience, which added to some years of observation and practice leads me to the conclusion that as a whole, and speaking generally, seed grown in a strong soil will afford a better yield than those grown in light sandy soil.

My father was regarded in his little sphere as a "great Potato man." Potatoes were a vital question with him, having to bring up a family of eight on from 10*s.* to 15*s.* per week. He had Potatoes in isolated plots, in all sorts of soils. Such a position made a man look out and endeavour to turn an honest penny by any possible means. His experience of fifty years taught him that the plan that paid him the best was to obtain seed from strong soils. I will add to that fifty years twenty more of my own individual observation and practice, and I arrive at the same conclusion. I have tried to prove it and disprove it fairly, over and over again; the last time was in the past year. I planted a rood of medium soil, fine Potato land, using one kind of Potatoes, with equal portions of seed from light sandy land, strong warp land, and fen land. The warp seed gave the best yield, fen next; that from the sandy land coming out a bad third. If I had a thousand acres of such land to plant I would, if possible, draw all my seed from warp land, and none from soil of a light sandy nature. My experience is, that the poorer and more sandy the soil, the more and the smaller the eyes in the tubers; the stronger and heavier the soil, the fewer and finer are the eyes formed. Now, a fine stout stem will produce a fine root of Potatoes. A cluster of wiry-looking stems produces a multitude of small trashy tubers. Two or three eyes, whether on a cut Potato or a whole one, will give a better yield than half a dozen smaller shoots springing from the same set. If, then, a whole Potato is planted, it is wise to take out a number of eyes before putting it in the ground. A rough and expeditious mode is to cut off, by a slice, the cluster of eyes at the end of the tuber; a slower but better plan is to pick out all but two or three of the most prominent. Cut Potatoes are as good as whole ones if not less than two good eyes are secured to each set; but the sets are better if the whole tubers are not disbudded for the reason above stated.

It is unwise to put freshly cut Potatoes in sacks or in large heaps and leave them there for a length of time, as they will often heat. This kills the eyes and is the cause of many blanks one meets with, and which cause some surprise. If allowed to dry, and the wound to heal over before being packed away for a reasonable time, no harm will result. Dusting newly cut seed with lime hastens the wound healing and is good practice. It is a bad plan to allow seed Potatoes to lie thickly and produce long weak sprouts which must be rubbed off. Allowing them to be produced weakens the Potato and tends to cause disease. This neglectful plan, by impairing the vital force of the tubers year by year, has done more to foster disease than almost anything else. Bleed the lambs and calves a few times in their infancy, and continue the practice for a few years, and what sort of flocks and herds would be the result?

As regards planting, in light and dry soils plant early and deep; in cold, wet, and heavy soils, late and shallow. By planting Ashleafs, for instance, in light soil in this dry district, 5 or 6 inches deep in February, I obtain quite double the crop as compared with late and shallow planting. The roots take a good hold of the soil, and are out of reach of the sun's rays, which otherwise burn them up extensively. On the other hand, in wet strong soils the second week of April is quite early enough for planting the same kinds. In such soils planting on the surface, and digging trenches between the rows to cover the sets, cannot be too strongly recommended. I have seen fine crops on this plan on ground worthless for Potatoes if planted in any other way. For free workable soils the ridge-and-trench plan has no advantages, at least I have seen none, over the ordinary level system of planting.—J. WRIGHT, *Gardener to Hon. A. L. Melville.*

SPRING-BLOOMING PLANTS IN THE DUBLIN BOTANIC GARDEN.

AMONG the pleasures which a traveller has may be reckoned the opportunities he has of visiting botanic gardens. I have this afternoon (February 24th) spent several pleasant hours in those at Glasnevin, Dublin. These have, I consider, the

most beautiful grounds of any botanic gardens in the United Kingdom. My object in writing to you is to bring before your subscribers information which in years gone by would have been very useful to myself; for, being an ardent lover of flowers and fond of cultivating them, I was exceedingly desirous of having early-blooming plants in my garden, and succeeded in that respect in far surpassing all my neighbours in a wealthy neighbourhood; but the spring-blooming plants I then knew were few in comparison with those I have this day (Feb. 24th) seen in blossom.—P. N. W.

Arabis albida
  blepharophylla
Aubrietia grandiflora
  deltoidea
  græca
Anemones
Armeria latifolia
Arbutus Andrachne
Bulbocodium vernum
Cheiranthus Cheiri
  multiflora
  scoparius
Cardamine rotundifolia
Cowslip
Crocus bifolia
  vernus
  susianus
  luteus
Cyclamen
Doronicum caucasicum
  columnæ
Erodium hymenodes
Erica carnea
  mediterranea
  arborea
Farsetia clypeata
Fenzlia dianthiflora
Garrya elliptica
Gorse
Galanthus plicatus
Gentiana acaulis
Hepatica, various
Helleborus atro-rubens
  purpurascens
  olympicus
  orientalis
Iris reticulata (strikingly beautiful)
Iberis
Laurustinus
Leucojum vernum
Lonicera Standishii
Lithospermum orientalis
Matthiola græca
  fenestralis
Milla uniflora
Muscari botryoides
Mezereon
Omphalodes vernum
Orobus vernus
Oxlip
Pansy, yellow
Phlox procumbens
Petasites lobata
Pyrus japonica
Pulmonaria grandiflora
Polyanthus
Potentilla alba
Primula amœna
Ribes album
Rhododendron præcox
Saxifraga crassifolia
  oppositifolia alba
  purpurea
Symphitum officinale
Scilla sibirica
  bifolia
  præcox
Snowdrop
Tritoma media
Viola odorata
Vinca
Veronica
Yellow Jasmine

MUSHROOM CULTURE.

Have the dung in good order, neither too dry nor too wet, and keep it about a hundred days to allow of its getting cold. In making the bed beat it thrice, the harder the better, and I always have the dung beaten very small before heating, as then the heat is more lasting than would otherwise be the case. With the last lot of dung to go on the bed I always mix loam, as then the spawn runs better. When the bed is made I insert a drain-pipe in the middle, put a thermometer in it to show the exact heat, and when the temperature is 70° or 80° I place the spawn on the top of the bed, cover it with 2 inches of hot dung and loam, and beat down hard. Some people cover the bed with straw or hay; I do not, as I find it answers much better without anything. Keep the air of the house at 65° or 70° and moist, and in six or seven weeks there will be Mushrooms fit for use. If the bed becomes too dry, supply water of the same heat as the bed.

In taking the crop cut as you like. I cut mine with about an inch of stem. Three days after cutting look at the old stems, and you will find them moulding at the soil; if they are allowed to remain they will spoil many good Mushrooms; take them between the forefinger and thumb, give them a twist, and they will come off easily without spoiling the others. By this management I have as good a bed as one could see. Do not allow even a drop of rain to reach the dung.—J. W. Crowood.

[There are good ideas in your communication, but on the whole "much cry and little wool." First, with regard to having Mushroom dung in preparation for a hundred days. Why, with the roughest material we would often have a heavy first crop and a second bed coming on in that time. Secondly, with respect to the beating of the dung so small before heating, we convinced ourselves more than thirty years ago that it is worse than a mere waste of labour. We would rather keep the good properties of the dung. Thirdly, as regards not putting any covering on the bed, it is a matter to be regulated by circumstances. In a regularly heated house it is not required. In the open air or in open sheds the covering is indispensable, perhaps not so much with the view of securing a crop as for getting the crop when you want it. It is a poor result to obtain Mushrooms in six months when you want them in six weeks. Before spawning the thermometer is useful, but any gardener will know the heat by a mere trial-stick inserted in the bed. The mode of gathering will always be a disputed matter. Some twist and some cut, and where there was a good bed we could never discern any difference in the result. It is better not to use too large pieces of spawn, nor to place them thickly together, and then the Mushrooms do not come up in such large masses as to render the gathering difficult. Ever since we received lessons of economy from a man cook we have been careful to send Mushrooms with almost every bit of stalk. He showed us a dozen large preserving-bottles filled with little bits of the stems of Mushrooms, and these for most purposes were just as useful as small button Mushrooms.—R. F.]

LYCOPODS.

When a regular supply of plants is required for room-decoration, Lycopods are indispensable. They possess charms peculiarly their own, and their pleasing shades of green enhance the beauty of all plants with which they are associated. The gardener who has a well-grown collection to choose from for the purpose indicated, has at his command an acquisition that cannot fail to be of service to him, and impart pleasure to those whom it is his duty to please.

The culture of the majority of Lycopods is simple, and might be summed-up as follows: A regular supply of moisture, shade from the direct rays of the sun, a still atmosphere, and good drainage. This is applicable to both greenhouse and stove species; neither will succeed well if exposed to scorching sunshine, a dry airy atmosphere, want of water, or bad drainage. The size that Lycopods can be grown to is limited only by the room at the disposal of the cultivator. Large pans of Lycopods are very beautiful, and for special purposes it is desirable to have a few such; but for general usefulness small plants are preferable. Their most important use is edgings to vases and baskets, and as carpeting to other plants used in the decoration of rooms; and for both purposes small plants are superior to large masses. It is best, therefore, to grow a number of the more useful varieties in small pots, say from 2 to 8 inches in diameter. The former will be found very useful, and the latter is large enough for most purposes. Those growers who have only a greenhouse will find April a good month to repot them. Where there is a vinery repotting can be done in March, as in most cases the Vines will then be receiving assistance from fire heat; and the additional temperature and moisture of the vinery will assist the Lycopods to establish themselves with greater certainty of future well-doing. In repotting, use clean pots, both inside and out, and be careful to drain them properly, remembering that the plants will require daily supplies of water; and if the drainage is imperfect, the soil will soon get sour, and the plants cease to thrive. A few days previous to repotting, have the fresh soil taken into the structure where the plants are growing, so that it may get warmed, and be in fit condition to receive them.

All the greenhouse Lycopods will grow well in a mixture of fibry loam and leaf mould, with sufficient silver sand and pounded potsherds added to keep it porous. Let the loam be rather rough—the plants will do all the better for it being so. When ready to commence repotting, turn the plants out of their pots, and divide them into the requisite number of pieces, taking care in the case of the branching varieties, such as Selaginella stolonifera, to secure a piece of root with each division. Fill the pots with the compost described, and press it rather firm, keeping it a little higher in the centre of the pot; then with a stick for the purpose make a hole in the centre, and insert a division of Lycopod, around which, towards the edge of the pot, insert as many pieces as may be thought necessary to form a symmetrical plant. When potted, place the plants in the least airy part of whatever structure they are to stand in, but in such a position as they will not be exposed to hot air from the hot-water pipes or flues. Give them a good watering through a fine rose, attend to the directions already given, and in due time you will be rewarded for your care.

For the benefit of those who may not be acquainted with Lycopods, I append the names of twelve that can be successfully grown in a greenhouse. Selaginella apoda, Moss-like habit, very beautiful; S. Martensii, close habit; S. flexuosa, small branching fronds, pretty; formosa, very close habit, a most useful variety; S. Wildenovi, handsome drooping Fern-like fronds; S. cordifolia, grows about 6 inches high, very elegant; S. Schotti; S. denticulata, will grow almost any-

where, and for general usefulness and carpeting to other plants it has no rival; S. stolonifera, an easy-grown useful sort; S. Burghalli; S. cæsia; S. cuspidata, very pretty, forms a bird's nest, fronds branched.—(*The Gardener.*)

BLACK HAMBURGH OR BLACK HAMBRA GRAPE.

"What's in a name?" Not much, perhaps, unless it leads to correct apprehension; and the name "Black Hamburgh Grape" does lead to the erroneous idea that the original Grape was brought to England from the German port of Hamburg, sometimes spelt Hambro', a place where the Vine does not grow except under hothouse culture.

The Vine in question was introduced into England, I believe, by Mr. Warner about 150 years ago, the original Vine being found by him at the Moorish Palace in Spain called the Palace of Al Hambra, whence he called it the Black Hambra Grape. Now, the Palace in question being little known in comparison with the town of Hamburg, the spelling was soon by many persons corrupted to Black Hambro', the final letter only being changed. When that spelling became general it, no doubt, somewhat obscured the history of the Grape; but the present spelling, Black Hamburgh, does so effectually, and it seems to me, therefore, desirable that the original spelling, Black Hambra Grape, should be at once restored.—T. Thompson, *Welton, Brough, Yorkshire.*

[The derivation you advocate deserves to be correct. This Grape and the Red Hambro' were introduced in 1724 by Mr. Warner, and cultivated by him in his garden at Rotherhithe. It is described in many books as *Warner's Grape.* Bradley mentions him as "a gentleman who makes good wine from his own vineyards." The opinion that both the varieties were brought from Spain is in some degree sustained by the fact that the Red Hamburgh is spoken of by some writers as the Gibraltar Grape. Such names, however, are not reliable evidence of derivation, for the Turkey is certainly not a native of that empire. We know of no positive record that Mr. Warner obtained the varieties from Spain; and if he obtained them by the agency of Hamburg merchants that town's name might naturally have been applied.—Eds.]

LOVE OF EXCESSIVE PRUNING, EVEN THE STRAWBERRY PLANT.

Pruning is by many considered an absolute necessity. By others, including myself, it is believed to be of little importance; and certainly there are the laws of Nature to support the latter conclusion. This is pre-eminently an age of pruning. What escapes the knife or shears? Nothing, not even the Strawberry plant. I think there are many crops endangered, nay, wholly destroyed, as lately stated in these columns, by strictly adhering to a fashion of pruning. How few of the many amateurs' gardens do not bear ghastly marks of the same! Enter one on a fine day, and nip! nip! nip! will be the sound that will greet you long before any person is visible. Yes, here it is. Walks strewed with the tops of every possible shrub; all are subjected to that love of using the knife, or more commonly scissors. Fruit, flowers, and foliage are all cut for the twentieth time the same summer. Of course, any part of the shrub that is out of arm's reach is left in all its wild profusion. What a contrast to that which is under the hand with a pair of nippers! It seems almost incredible, but such is a fact. One instance will suffice. I knew a retired steward, a person we should suppose would have known better. Whenever he was in the garden, a stout pair of pruning scissors were his companions: woe to any shrub that had made a growth of a few inches. A fine lot of Rhododendrons had bloomed well the first season after planting. It was the first and last, for as soon as the annual growth began the nippers had their usual work to do. The same thing is too often seen in a less marked degree with professional gardeners. How can it be said

> "This is an art which does mend Nature,
> Change it rather, but
> The art itself is Nature."

But to Strawberries again. I am always open to conviction, but I have not yet, after many years' practice, found it necessary to pinch off all the runners. Doing so causes an undue exertion of the parent plant to put forth new ones, and so a constant strain is kept on it in that direction; whereas, if left, the offspring will soon take root and maintain itself, and then, like a dutiful parent, after her young are established, she takes care of herself and makes no further exertion for a new brood. Deprive her of them, and she instantly begins again. I believe there is little or no strain on the parent when the young plant takes root; sever it when slightly rooted, and it will maintain itself. The extra labour required in going over the plants five or six times I say nothing about. "They want plenty of muck under them if you keep pinching off the runners" said a brother gardener when I was speaking to him on this subject. I do not vindicate the practice of leaving ground a mass of Strawberries for months, for this would be impoverishing the ground, which would be equal to impoverishing the parent plant by continually nipping off the runners. Does it not endanger the plant, too, to keep up this activity too late in the autumn, so that before growth is thoroughly matured, winter is on it, and leaves its marks by destroying the major part of them, especially those of a tender constitution?

There is yet another practice; happily I believe it is not carried on to any great extent, nor yet so much as formerly. If we were to reflect for one moment, and consider the importance of the leaf, surely no one would venture to take a scythe and cut off the leaves long before they assume the appearance of having performed the functions allotted to them. Many years ago my father was persuaded to do it, under the idea, as his informant assured him, of doubling his crop the following year. Forthwith, upwards of an acre of beautiful luxuriant foliage was destroyed. But was the crop doubled next summer? No, nor was there half the crop usually obtained; and as market gardening is a matter of pounds, shillings, and pence, it was the first and last time the leaves of Strawberries were molested by him. Leave them; they help to protect the plant through the winter.—J. T., *Maesgwynne, South Wales.*

ENTOMOLOGICAL SOCIETY'S MEETING.

The annual meeting for the election of Council and officers, and other routine business, was held on the 22nd of January at Burlington House, the President, A. R. Wallace, Esq., being in the chair, by whom an address was delivered on the progress of the science, dwelling especially on the views recently advanced as to the gradual evolution of insect life by tracing it back to some primary germ or element, views subversive of intelligent design and creation in the animal world. The following gentlemen were elected as officers for the ensuing year:—President, Professor Westwood; Treasurer, Mr. S. Stevens; Secretaries, Messrs. Grut and McLachlan; and Curator, Mr. Ianson.

The first ordinary meeting in February was held on the 5th inst., the newly-elected President in the chair, who returned thanks for his election, and expressed a hope that his efforts for making the meetings of the Society successful would be seconded by the members keeping the benefit of the science and of the Society in view rather than indulging in personal discussions; the President then nominated Messrs. F. Smith, H. T. Stainton, and Edward Saunders to act as Vice-Presidents. A large and important list of accessions to the Society's library was announced, and certificates read in favour of five new members. Mr. F. Smith read a note from Mr. Moggridge, at Mentone, relative to the publication of his notes on the habits of Ants. Mr. McLachlan exhibited part of a branch of a Poplar tree growing at Kentish Town covered with the desiccated skins of Aphides, which had been destroyed by some parasite, resembling clusters of the eggs of some large species of insect.

Major Parry read a paper containing descriptions of a number of new and very fine exotic Stag Beetles, including a very remarkable species just brought from Ecuador by Mr. Buckley. Mr. Bates, in reference to this insect and the geographical range of the family, stated that during the whole of his residence on the banks of the river Amazon, for eleven years, he had never once captured a Lucanus. Mr. Druce exhibited a number of cases containing portions of a very extensive series of Butterflies recently received from Costa Rica, collected by M. Van Patten, amongst which were at least fifty species new to science; three of these belonged to the genus Papilio, three to Morpho, three or four to Leptalis, and a new genus allied to Pronophila. Some of these new species had been already described by Mr. Butler in the "Cistula Entomologica."

Professor Westwood exhibited several new Arachnida belonging to families and species not previously recorded as British, including a species of the genus Trogulus, taken by Rev. P. Cambridge in Dorsetshire; the singular Argas reflexus, of which a colony had been found under a stone in the crypt of Canterbury Cathedral; a new species of the same genus taken in the church of Whittlesford, Cambridgeshire, apparently parasitic on the Noctule bat; also a specimen of the poisonous Argas persicus from Persia; and a new genus from Sumatra, allied to

the cavern-dwelling genus Hyphophthalmus. Mr. F. Smith stated that a specimen of the Dog Tick had been sent him from Canterbury Cathedral as a fat Spider peculiar to that building.

Mr. Lewis made some observations on the nomenclature of Lepidopterous insects, occasioned by Mr. Crotch's paper in the last part of the "Cistula Entomologica."

EFFECTS OF BOTTOM HEAT ON PLANTS GROWING OUT OF DOORS.

The following facts are of sufficient practical importance, I think, to merit attention, and some of your readers may probably have something further to say on this subject.

Late in the spring of 1870, we had occasion to move a number of somewhat stunted common Laurels that formed part of a bank. Some of them were planted about the pleasure grounds in ordinarily favourable situations, but as the season was very dry they may be said to have survived only without making any growth. Last year (1871) they recovered themselves, and made about 6 inches of young wood generally. I state these facts for the purpose of comparison. Another lot of the same plants were planted behind a lean-to Melon pit, on a north aspect to hide the brick wall, and, so far as soil and situation are concerned, under less favourable circumstances than the others. Instead of remaining dormant the first year, however, they started into growth immediately, and by midsummer had made a luxuriant growth, when they rested a bit and then made a fresh start again, finishing a still more luxuriant growth about the end of October, and producing two distinct growths on every shoot, each about 1 foot in length, and which anyone unacquainted with the circumstances would have pronounced decidedly to be two years' growth; the first growth having all the hardness and matrurity of a last year's shoot. As the later growths were soft, and as last winter was severe, I fully expected they would be killed by the frost; but they suffered no injury whatever, while the Laurels in other places were browned considerably.

Last summer (1871) they again made two distinct growths, adding to their stature from 3 to 5 feet in two years. Now for the secret. The pit against which the Laurels are growing is kept at a high temperature all the year round, and the ground where the roots of the shrubs are is about a foot or more above the level of the path inside the Melon house, hence the warmth to the ground outside for nearly 4 feet from the wall.

I tested the temperature of the soil among the roots of the Laurels, about 2 feet from the wall, and found it to be 46°; while in an open bed, a few paces off, the thermometer stood at 39°; this was about the end of December last.

I think it is Dr. Lindley who somewhere discusses the probability of plants having the power to resist a considerable degree of cold when their roots are in a comparatively warm medium, the theory being that the heat is communicated to the stems and leaves through the roots. The facts I have stated would seem to bear out such a theory; and, no doubt, similar instances might be recorded. Some of your readers will perhaps remember a paragraph which appeared in a contemporary some time ago, recording ripe Strawberries in the open air early in May, if I recollect aright, in Yorkshire. This was true enough, but their earliness was due to a strong bottom heat, originating from nothing less than a coal pit on fire. We saw the Strawberry patch in question last summer, and found the plants blooming and bearing then, in a bottom heat of 85° or 90°.

With such facts as these before us, we may reasonably suppose that such things as Apples and Pears, &c., might be safely and advantageously treated to a higher root temperature, when growing out of doors, than is naturally communicated to the soil under ordinary conditions. There can be little doubt that, with their roots in a comparatively warm temperature, the trees would be able to resist a greater degree of cold when in bloom, and we may be sure the fruit would be earlier and better ripened. Here, on the extreme limits of Pear-growing, we have been cogitating on the practicability of heated borders for the better kinds of dessert Apples and Pears. We would propose to plant in quantity dwarf pyramids in rows about 6 feet apart and would furnish bottom heat by means of 2-inch hot-water pipes; a single row of pipes being laid under each row of trees, burying them in the subsoil, say 4 feet from the surface. This would be ample heating power, and the depth at which the pipes lay would prevent all danger from accidents to the roots. Mulching the surface would, of course, be advantageous in various ways, and be a means of economising the heat. I am not aware that anything of this kind has been tried yet; and these are only suggestions, which I leave your readers to discuss.—J. S., *Wortley*.

[Along with this we have received a shoot of Laurel from Mr. Simpson, showing the two distinct growths, each about 1 foot in length.]—(*The Gardener.*)

Rose in Flower.—To show the mildness of the present season, let me mention that I have a Lamarque (Noisette) Rose tree in bloom in the open air (Feb. 26th). Will any of your subscribers say if they have ever known a Noisette Rose tree bloom in February? The tree is against a south wall, and was only planted last spring.—John R. M. Camm, *Monkton Wyld, Charmouth.*

INFLUENCE OF MANURES—PREPARING GROUND FOR ROSES.

In my former communication I was induced to make a few remarks as to the possibility of iron and other agents having a marked effect on the growth of plants; and, I may mention that I was much interested by the account contained in your columns of some experiments with regard to the influence of this and other manures on the colours of plants. By these, it appears that iron does not produce so marked an effect on the growth as might have been expected. I myself think that iron, being a constituent in the blood of animals, must be a necessary one in the ash of plants.

Two or three other manures occur to my mind, the effect of which can only be mechanical. Of these cocoa-nut fibre and charcoal are notable instances. The former may be very valuable in its way for Orchids, or any plant requiring a fibrous soil; and I have no doubt that your correspondent's suggestion that Hyacinths may be very successfully grown in it is a good one; but the actual manurial value of either may be considered almost *nil*.

I should now like to give my ideas as to the best method of forming a rosarium; and although the subject is one that has been often pretty well handled, I may, perhaps, notwithstanding, be able to throw a little fresh light upon it.

The first thing to be seen to is that the soil is brought into a proper state by mechanical means, and the second that it is enriched to such a degree as to insure success. If your soil is light, and you intend to grow the Briar to some extent, or even Roses on their own roots, you must stiffen it more or less. Where money is no object, you may get a contractor to provide you at, perhaps, a cost of 10*s.* to 15*s.* per load, with some rich clay loam and grass sods to a depth of two spits; but if you cannot afford this, take the opportunity of laying-in a stock of good clay, which you may often obtain for little more than the cost of cartage. This should be put on to the extent of 4 inches in depth, or about a barrowload to a square yard, and left exposed to the action of the winter's frosts until the spring, when the process of amalgamation will be found to be much accelerated. Your plants, if already purchased, should in the meanwhile be carefully laid-in in a sheltered spot. If you happen to have one of those wretched gravelly soils mentioned by the Rev. S. R. Hole, add a quantity equal to its own bulk of the best ordinary soil that can be procured; and where burning it is practicable, I strongly recommend clay. If your soil is rather stiff it must be somewhat lightened for the Manetti and China Roses, and this can be effected by addition of sand or light loam.

I now come to the important question of manure. I strongly inculcate laying a good foundation of what is best called mineral manure. For obtaining a supply of phosphoric acid I recommend bones; and I do not think it is of great moment in a proper close soil whether they are half-inch or crushed, though perhaps the latter may be rather slower and more lasting. Apply them at the rate of two tons per acre, or 1 lb. per square yard, and even double this amount may be given with safety, as this only allows about 3 ounces for the 12 inches deep of soil, the least we can calculate to enrich. One per cent. would be a grand basis. Potash must next be supplied, if it is even at the risk of some trouble or of disgusting your gardener. It should be sulphate of potash, and should be applied to the extent of half the quantity of bone dust. Be careful, however, not to buy any substance containing only a

small per-centage of potash, as the application must then be considerably increased, and is consequently rather more dangerous; it must therefore be used with caution, especially in the case of pot Roses.

Thus enriched there is no absolute necessity to use farmyard manure, but a littering-over after planting, or the following autumn, may be useful for protecting the roots. For prize Roses we must apply some nitrogen every spring by watering with the liquid drainings of dung heaps, or dissolved guano, or nitrate of soda, to act as the so-called stimulant, producing a strong and rapid growth, and rendering the other food more soluble. Be careful to dilute well, and choose wet days for application.

If with soil thus treated in a favourable situation and with proper drainage, &c., you cannot vie with your neighbours in growing good Roses, then I will cease to offer any advice on the subject, and listen with patience to the praise of fibre shavings and scrapings or sawdust, and acknowledge that there is something very peculiar and incomprehensible about the predilections of this plant. I am glad to see that Mr. Radclyffe does not express great faith in the iron manure. I should like to ask him whether a climbing Rose in a very dry position would have its roots kept damper or otherwise by placing a slab of stone over it. I should also like to know where I can get a well-grown plant of Cloth of Gold Rose for a greenhouse wall.—J. S. K.

P.S.—I have just noted the Rev. C. P. Peach's communication. He has to some extent misunderstood me, as a perusal of the foregoing will show; but I will proffer a few remarks on his views in your next issue.

GRAFTING.—No. 3.

The examples we have given of inarching in our previous papers are those which are most generally adopted among us; but there are numerous other forms of it practised by the French in constructing the fancifully-shaped fruit trees met with in the gardens of the *bourgeoisie* in the suburbs of the large towns of France, which we consider of little use to our readers. One example of this style is shown in *fig.* 1, where

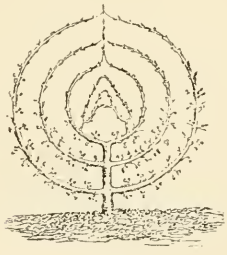


Fig. 1.

the branches, following a regular curve representing a target, meet at the summit and are united by grafting. In the centre M. Forest, who is skilful in this sort of training, has formed a letter A by means of inarching. In the garden of M. Nallet, of Brunoy, his name NALLET is reproduced in six trees. In the same way M. Baltet has formed his own name by the junction of trees by means of inarching.

There are several other illustrations of this mode of training and inarching given in M. Baltet's book, but those which are really of useful application are those that are thus described.

We have ascertained the good effect of inarching the principal branches of winged pyramids, goblets, and lyre-shaped trees, either isolated or in trelliswork, in the fruit garden of M. A. Mas, pomologist at Bourg, and in the orchard of the École d'Agriculture at Soulaise (Ain) formed by Verrier. The *single cordon*, particularly applicable to the Apple tree, ought to be terminated by grafting it into another, each leader being pruned at the extremity in a slanting cut, and introduced under the bark of its neighbour at the curved part by the system of buttress-inarching (*fig* 2); a continuous line of small trees well balanced is thus obtained.

Fig. 2.

[M. Baltet then proceeds to give an example of grafting which cannot be called inarching, since the scion is free and does not remain in contact with its parent. It is employed to fill up a space between single cordons when the leader is not long enough to reach from one to the other, and it is done by grafting a scion of the length required, first the base into the summit of the leader, and the apex into the curve of the neighbouring cordon. The next illustration is ingenious if not productive of great results.]

Inarching Applied to Increase the Size of Fruit.—This application of inarching is not very widely practised, because on the one hand it requires some skill on the part of the operator, and on the other success does not always reward the work. We have meanwhile authenticated more than once its good results, and particularly with M. Luizet, fruit-grower at Eculty. He exhibited beautiful specimens of it at Lyons in 1856 at the institution of the Congrès pomologique.

About the month of June a young herbaceous shoot is inarched on the stalk of a Pear (*fig.* 3). It is bound with a

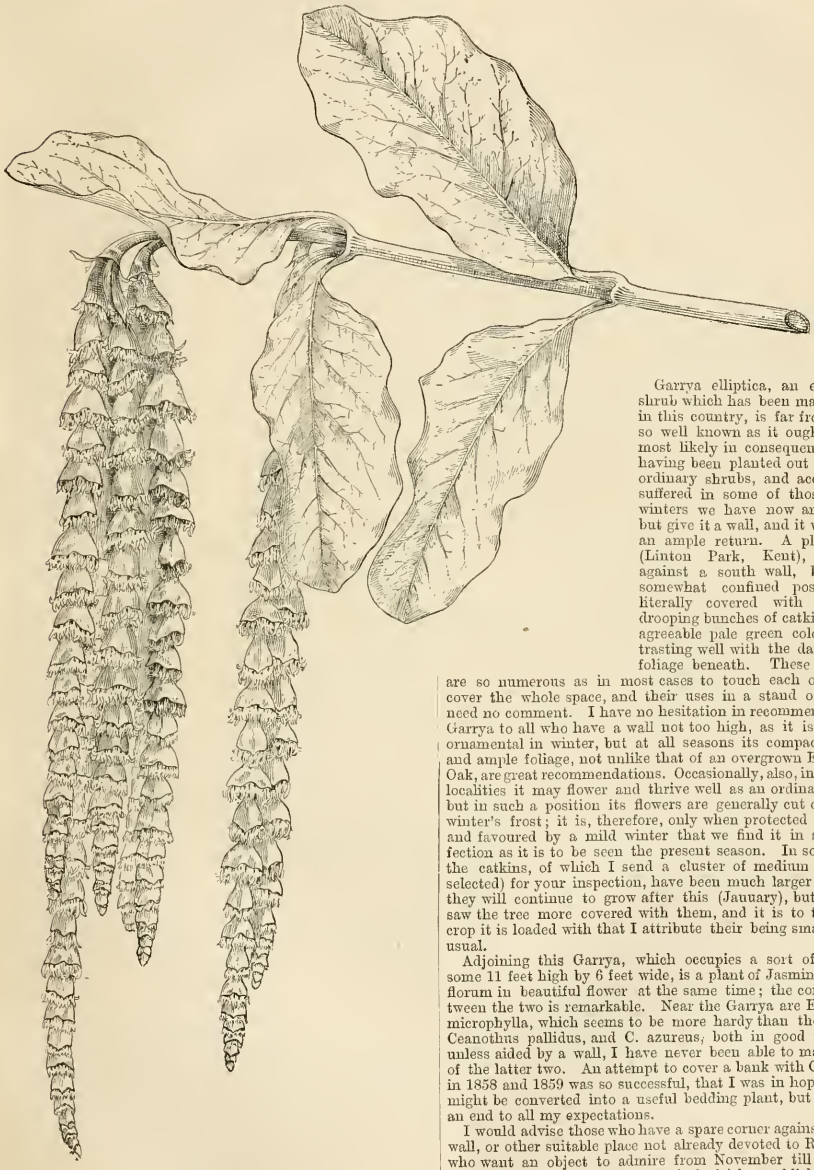
Fig. 3.

woollen ligature without bringing the two parts too closely in contact. If the shoot continues to grow vigorously the extremity ought to be pinched, but if it sets at the extremity then it is to be left alone. It is thought that the fruit, receiving by this means a supply of nutrition, ought thus to increase in size. When the fruit is produced on a fruit-bearing spray, a nurse-scion can be grafted on the spray besides the scion grafted on the stalk of the fruit. We have tried it successfully. In the case of fruit with too short or too fine a stalk, as the Apple and the Peach, the herbaceous shoot on the fruit-bearing branch is to be grafted by the ordinary mode of inarching or buttress fashion, as near as possible to the point of junction of the fruit on the branch. The ligatures of grafts will be in these two examples tied in such a way that they can be loosened without cutting should they become too tight.—Charles Baltet, *L'Art de Greffer*.

GARRYA ELLIPTICA.

Gardens would be dreary in winter were it not for evergreens, and in those districts where the severity of the climate limits the number of such ornaments, the few that can withstand it are the more prized. It is fortunate that among these there happen to be two or three of the most handsome evergreens we have. Hollies, Rhododendrons, Box, and Juniper are all very hardy and beautiful as well. The Holly, in par-

ticular, is invaluable from its clothing our woods and dressed grounds in the loveliest of green, enlivened, too, during the winter by multitudes of carmine berries. My purpose, however, is not to call attention to the Holly and the other hardy plants referred to, but to urge the claims to greater attention of a shrub which is not so hardy as they are.



Garrya elliptica.

Garrya elliptica, an evergreen shrub which has been many years in this country, is far from being so well known as it ought to be, most likely in consequence of its having been planted out amongst ordinary shrubs, and accordingly suffered in some of those severe winters we have now and then; but give it a wall, and it will make an ample return. A plant here (Linton Park, Kent), growing against a south wall, but in a somewhat confined position, is literally covered with its long drooping bunches of catkins of an agreeable pale green colour, contrasting well with the dark green foliage beneath. These bunches are so numerous as in most cases to touch each other and cover the whole space, and their uses in a stand of flowers need no comment. I have no hesitation in recommending the Garrya to all who have a wall not too high, as it is not only ornamental in winter, but at all seasons its compact growth and ample foliage, not unlike that of an overgrown Evergreen Oak, are great recommendations. Occasionally, also, in favoured localities it may flower and thrive well as an ordinary shrub, but in such a position its flowers are generally cut off by the winter's frost; it is, therefore, only when protected by a wall and favoured by a mild winter that we find it in such perfection as it is to be seen the present season. In some years the catkins, of which I send a cluster of medium size (not selected) for your inspection, have been much larger; indeed, they will continue to grow after this (January), but I never saw the tree more covered with them, and it is to the heavy crop it is loaded with that I attribute their being smaller than usual.

Adjoining this Garrya, which occupies a sort of buttress some 11 feet high by 6 feet wide, is a plant of Jasminum nudiflorum in beautiful flower at the same time; the contrast between the two is remarkable. Near the Garrya are Edwardsia microphylla, which seems to be more hardy than the Garrya, Ceanothus pallidus, and C. azureus, both in good form, but unless aided by a wall, I have never been able to make much of the latter two. An attempt to cover a bank with C. azureus in 1858 and 1859 was so successful, that I was in hopes that it might be converted into a useful bedding plant, but 1860 put an end to all my expectations.

I would advise those who have a spare corner against a south wall, or other suitable place not already devoted to Roses, and who want an object to admire from November till April, to plant Garrya elliptica, and after it is fairly established not to

prune nor trim it too much. Tie it in a little if it project too far, but in the summer dressing leave a number of the shoots at their full length, otherwise, in all probability, there will be no blossom, as it is all at the points, or what botanists call terminal.—J. Robson.

A SOJOURN IN THE HIGHLANDS OF SCOTLAND.

(*Continued from page* 127.)

The morning of the eighth day was again gloriously fine and we determined to devote it to the valley of the Lochart. This valley or glen is rather narrow, and the sides of the mountains are not so well wooded as those of the Lochay. Our main object was to hunt for varieties of Blechnum and Lastrea montana, of both which there was plenty; and we soon discovered a fine patch of the rare Blechnum S. heterophyllum. This plant, as previously found, has been solitary, but here it had a sporadic character. We gathered some twenty or thirty plants, and left several for the next adventurers. After some time we took to the sides of the mountain, and there found the Calluna vulgaris, variety dumosa, with many other interesting plants, but which we cannot stop to notice.

The next two days were spent in an excursion and journey to Ben Lawers. The morning of the eleventh day we rose early. The clouds rested sleepily on the lower shoulders of the mighty Ben, not more than 1000 feet above the base; but we felt confident they would rise as the day advanced, and accordingly commenced the ascent by a route which, the day before, we had laid down as most eligible. Following one of the fences which run up the base of the mountain, we came upon a fine form of Blechnum near the B. caudatum of Moore, which was a good find of ours, in North Wales, some years ago. In this the cauda, or tail, was very blunt, therefore B. obtusicaudatum would be a more appropriate name. Then we came upon a fine patch of the White Mother Thyme (Thymus Serpyllum album). Well, up and up we go, and now we win the first shoulder of the mountain, and are fairly among the heather; but where are the clouds which rested here when we were at the foot of the mountain? They, too, have been creeping slowly up the mountain, and are still 700 feet above us. Higher and higher we go, and at every step we gain upon the clouds. It was not till we touched the base of the rock-crowned summit of the mighty Ben that we fairly encountered the fleecy vapours; but, oh! how delicious was the atmosphere—so soft, so pure, so warm and genial, that it was mildness itself! It was the most delicious cloud bath, and the greatest atmospheric luxury that we ever enjoyed. These clouds were not of equal density—some were thick and flocculent, others thin and attenuated, so that we had occasional glimpses of high and steep cliffs of mighty rugged masses of rocks, assuming all sorts of gigantic forms. By the occasional thinning of the clouds here and there we were enabled to make our way slowly up among the rocky heaps and steep cliffs.

As soon as we came to the rocks our astonishment and gratification began—we were in another world. The rocks (micaceous schist) showed an endless variety of distribution, form, and contour, and the surface of the ground and steep face of some of the cliffs were literally carpeted with the Alpine Lady's Mantle (Alchemilla alpina) over large areas. It was impossible to set down a foot without treading on this mountain gem. The upper surface of the leaves was a brilliant green, the under a shiny silvery satin. We almost shuddered at trampling under foot such beautiful verdure. Interspersed with the Alchemilla there was the still more rare Sibbaldia procumbens, and here and there dense silvery tufts of the dwarf Alpine Cudweed, Gnaphalium supinum. Up in the cliffs there were fine hoary masses of the Alpine Mouse-ear Chickweed (Cerastium alpinum), and, as the numerous hairs which clothe the whole plant were each terminated with a minute dewdrop derived from its cloud bath, it seemed almost like a mass of snow. Late as the season was, several of the plants high up among the rocky cliffs showed their large snow-white flowers. Its congener, the rare Cerastium latifolium, matted many of the little shelves among the rocks. The Alpine Meadow Rue (Thalictrum alpinum) was creeping among the Moss here and there, and showing its tiny Fern-like foliage, humble it is true, but not less beautiful on that account. Long lines of the Arctic Willow (Salix herbacea), not more than 1 inch in height, ran along the clefts of the rocks. There were large banks and patches of the little Moss Campion (Silene acaulis), its dense foliage packed so close together as to present the aspect of a mossy cushion; when in flower it is a vegetable gem of the first order. A companion to this, and imitating it in its mode of growth, but with still smaller foliage and more closely-packed shoots, was the Mossy Cyphel (Cherleria sedoides). As this was the first time we had seen this modest gem in its native home, and we believe almost its only British home, we were in an ecstacy of delight; but not this plant alone, but the multitude of others, now seen for the first time, yielded us many pleasures, and a new joy at almost every step, and we were kept in a constant thrill of astonishment and delight. Our spirits were exhilarated beyond measure; we were almost young again, giddy as a girl and buoyant as a youth let loose from school. It was impossible to feel hunger, thirst, or fatigue; the wading through miles of heather up the mountain's brow was nothing, and all our toils and difficulties were forgotten; and not a breath of air disturbed the delicately poised Bent-grass. The silence was deep and profound, save the faint murmur of a mountain stream, and the occasional distant croak of a raven. The only things which seemed to move were ourselves and the ever-varying clouds above, below, and around us, and we cared not for them so long as they retained their vaporous form. We were in the finest and the rarest alpine garden in Britain; we were very probably, though mere neophytes, treading in the steps of the botanists of old—Lightfoot, Don, Graham, Hooker, Brown, Greville, and a host of other worthies, who have made Ben Lawers renowned the world over.

We ascended higher and higher as the clouds permitted us to have glimpses of our course—zigzaging, now this way and then that; several times fancying we could see the summit, but when that was attained there was another point still higher; but as we rose the clouds became thinner, and by-and-by we left them below and stood on the top in a clear atmosphere. The vegetation near the top is very scanty, and the rare plants, Mosses and Lichens; of the latter Lecbanoras, Parmelias, and Gyrophoras were plentiful. But the one most interesting to us was the Solerina ochracea—seen for the first time. It is very striking, covering the loose stones with its leathery green rosettes, the under surfaces of which are of a rich golden hue. As we stood on the highest ridge we wished for at least one peep at the nether world, and waited for some time; but no, the fleecy masses, though occasionally thin, continued to obscure all beneath them. Once, and once only, through a nearly round hole in the clouds we got a glimpse of Loch Cat, on the eastern flank of the mountain. Passing slowly and cautiously down the western cliffs we came upon a depression or slight ravine—"corries" they are called in Scotland, and here the rare alpines were in rich profusion. The beautiful reticulated Willow (Salix reticulata) was very fine; the Saxifraga oppositifolia and miralis were abundant; and here we found what we had been long looking for—the vegetable gem of Ben Lawers—the Alpine Forget-me-not (Myosotis alpestris). We are told by good authorities that, when this plant is in flower, it is worth a journey to Scotland to see it, as the size and brilliant amethystine blue of its flowers gathered into compact heads, and the neatness of its foliage, render it one of the most beautiful of all alpines. When in flower it may be easily found, but now it requires to be looked for. It was nestling among the damp moss, on ledges of the rocks, among other rare denizens of this alpine garden; there also were found, in plenty, Polystichum Bonchitis, Pseudathyrium alpestre, and Lastrea dilatata alpina; also the companions to the exquisite Myosotis alpestris, the alpine Veronica, and Alpine Willow Herb (Epilobium alpinum).

We lingered long on this charming spot. The evening was drawing on, and we had to make a precipitate retreat. It was nearly ten o'clock when we reached our quarters.—(*Extracted from Mr. Stansfield's notes read before the Todmorden Botanical Society.*)

(*To be continued.*)

SHOWING VEGETABLES.

I am quite delighted to see vegetables taking the places which belong to them, although they are not so inviting as the beautiful Orchids and Roses, nor yet so luscious as Royal George Peaches, or the good old Hamburgh Grapes. Nevertheless, when we come to usefulness and health combined, I think your readers will agree with me when I say they are not to be placed beneath anything. Vegetable-showing is in its infancy, and I think proper regulations should at once be adopted to the satisfaction of all exhibitors, and if I may pre-

sume to give a few hints, I hope my doing so will be taken in good part by all.

I am sure you will admit that we Midland gardeners cannot successfully compete at such an early season as the gardeners of Cornwall and Devonshire. Take, for instance, the Carter cup at Nottingham last year. The Peas were full and good from the outh, but ours were not so, the reason being that the southerns enjoyed a better, warmer, and more congenial climate. I should like to know what is to be done to satisfy us all? I am sure your correspondents' great experience will be able to solve the problem.—R. Gilbert, *Burghley*.

AN AUSTRALIAN ADVENTURE.

The day was far spent as we neared a stream where we intended to encamp for the night, when "sounds of revelry" and boisterous mirth became more audible as we descended a hill. The noise and "rolicking-fun" soon after ceased, when the vocal strains of a fine tenor voice sang loud and clear the charming air and pleasant song,

"The maids of merry England, how beautiful are they."

The sentiment, so sweet and true, was harmoniously joined in by the party, whose voices commingled in the pleasing refrain.

As we listened to the once familiar words we felt certain that the voice of the singer was equally so, but when and where heard could not well remember. Our footsteps were quickened, as anxious "to join the jovial crew," we pushed onwards to the camp-fires, where a number of happy-looking mortals were enjoying themselves in various ways, which seemed to prove that there was such a state as rural felicity even in the forest shades of New Holland.

With but little ceremony we introduced ourselves as "travellers from Melbourne, on our way to Geelong," and were cordially welcomed to a share of their glowing fires and bivouac for the night. In the person of a handsome and gentlemanly fellow we fancied we recognised the singer whose song awakened thoughts of home and the loved ones there. Scarcely had we been seated, before our new acquaintance inquired, What part of England did you come from, and how long have you been away, and what are you doing now? Similar questions were asked and answered all round, when our interrogator somewhat surprised us with the information that his name was May, and was at one time in the nursery business near Bedale, in Yorkshire. "And my name is Harding, and well do I remember you when a young man, and in your father's employ years ago." The recognition was mutual when we referred to the time we heard him sing the same song he had just repeated, at a village party long ago. He, too, had not forgotten the time when bidding each other "good-bye" at the nursery gate, one cold December's morning, when, with "great expectations," we journeyed to the great metropolis, the centre in circumference of horticulture, where all young and aspiring gardeners aim for.

It was then, and may be so now, considered necessary to have a course of practice in and around London to qualify a gardener for a first-class position.

To sleep was out of the question; it seemed utterly impossible for anything mortal to slumber with the myriads of mosquitoes, fleas, ants, and other abominable insects torturing us in every way; so we passed the night in the smoke of the camp-fire, discussing "auld lang syne."

It was our good fortune to have fallen in with a party of "gum-pickers," who were gathering gum from the Acacia trees for exportation, and little inferior to the gum arabic of commerce procured in Senegal and the East Indies; from Acacia fera and A. arabica trees.

The varieties of Acacias are many, and number nearly two hundred species, indigenous to Australia alone; and are indispensable for greenhouse and conservatory decoration. Few, if any, flowering trees or shrubs are more beautiful or interesting than some of them. Such, for instance, as Acacia pubescens, A. conspicua, A. undulata, A. grandis, and A. Drummondii, grand beyond comparison. A. cultriformis, very curious; A. platyptera, A. Nielii, A. albicans, A. urophylla, so fragrant and pretty; A. amœna, a lovely gem; A. suaveolens, deliciously sweet; A. pulchella and A. spectabilis, beautiful indeed. These are but a few named of the many varieties, and all of easy culture. They will bear a good deal of hard usage and thrive moderately well, or perhaps better than most plants, in dwelling-house windows, and for setting-off a choice bouquet we know of nothing more graceful or pretty.—(*American Gardener's Monthly*.)

BATTLE ABBEY,

THE SEAT OF THE DUKE OF CLEVELAND.

When the Anglo-Saxons are named it is usual to associate their possession of England with the name of Alfred, to dwell on their triumphs over the early Britons and the Northmen, and to remember how they fostered the Christian missionaries in England; but when six centuries had passed they no longer retained the same characteristics, and one who has written their history tells that for the most part their sovereigns were feeble-minded, their nobles factions and effeminate, their clergy corrupt and ignorant, and the people servile and depressed. Thus England was becoming the possession of a debased, divided, and ignorant people. At this time of their decay the Normans came. Their dukes, though foremost as warriors, loved peace, their subjects were brave, united, and truthful; they were charitable, pious, lovers of literature, decorous, and moral. They conquered the Anglo-Saxons, and "from the mighty ruins with which the Conquest overspread the land, raised that great character of government—clergy, nobility, and people—which has since never ceased."

Knowing this we stood but a few days ago on one of the terraces of Battle Abbey, looked over the valley where eight centuries since the one decisive victory effected that conquest. Behind us—we were about to write "in our rear," for we had been reading of the strife until we had on our mind the military phraseology—was higher ground, and on it "The Watch Oak," marking where the Saxon sentinels looked out on the plain towards Pevensey on the movements of the approaching Norman host; and on Telham hill, beyond that plain, was planted the standard of the invading duke. Our feet were within the Saxon position. Harold's standard was here, near to it he was slain; the spot where he fell was covered by the High Altar of the Abbey, and the ruins of the altar's foundation remain.

We could dwell long and detail minutely the incidents of that bloody contest, but they are not within our province, and we may only note that the Conqueror had vowed, if victory was with him, he would build an abbey on the battle-field. He fulfilled his vow—

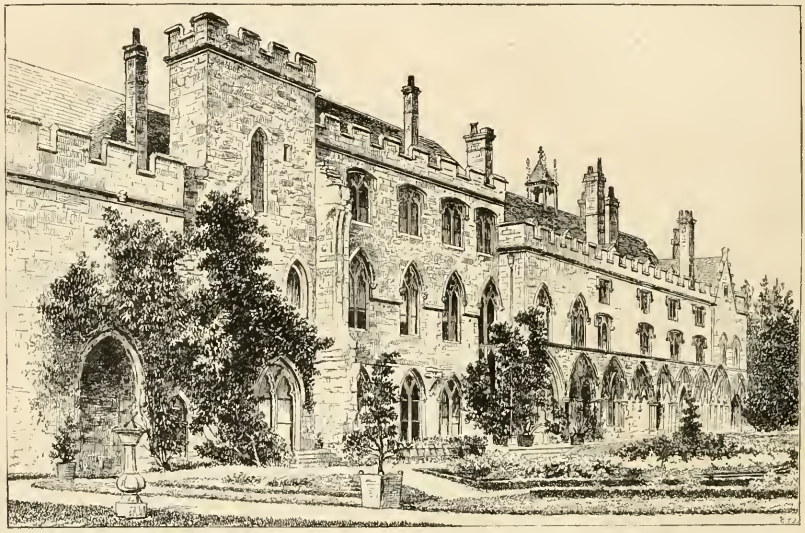
"And ther, as the bataile was,
An abbeÿ he lete rere
Of Seint Martin, for the soules
That there slayn were."

The Abbey was dedicated to the Trinity, the Virgin, and St. Martin, but this title, as usual, was popularly abbreviated, and it was known as "St. Martin's Abbey of Battle." Although commenced the year after the victory, the Conqueror did not live to see it completed, and William Rufus was at its consecration in 1094. It was surrendered to Henry VIII. when he abolished monasteries in 1538, and he granted, in the following year, the Abbey and the manor to his Standard-bearer and Master of Horse, Sir Anthony Browne. His son, created Viscount Montacute (erroneously spelt Montagu), demolished the chief part of the Abbey, and adapted the remainder for a residence; but the sixth Viscount, about the middle of the last century, sold it to Sir Thomas Webster, from whose descendants it passed to the family of the Duke of Cleveland. The Viscount was high in the favour of Queen Elizabeth, but we are not aware that she visited Battle Abbey. It is certain that she was entertained in the August of 1591 at Cowdray, the other residence of Viscount Montacute, and afterwards she was in the western parts of Sussex. The weather was propitious, and the company numerous, for it is recorded that the Queen frequently dined in the garden, that the table was 48 yards long, and that for a breakfast three oxen and one hundred and forty geese were provided.

We have endeavoured to give a slight historical sketch of Battle Abbey, but for a monastery so important and richly endowed, strange to say, comparatively little appears to be known of its history even a hundred years after its completion. Some parts of the building have evidently been built at a later date than the rest, and some are known to have been rebuilt by Sir Anthony Browne soon after the Reformation; but we are sorry to record the fact that little care seems to have been taken by former proprietors to preserve what at one time must have been, indeed still is, a noble and interesting building. Parts of it have been used as barns and granaries, and other parts lay long buried in the earth, or were suffered to fall to the ground. The entrance from the street of Battle is by a Norman archway and tower; eastward the

whole is lawn encompassed with belts of Laurels, Aucubas, Laurustinus, with tall Elms near the boundary; and beyond, the kept grounds merge into the extensive park. On the principal front, which faces the west, are trained fine plants of the Narrow-leaved Myrtle, Magnolias, Jasmine, and Garrya elliptica, the last covering a space 15 or 16 feet in height, and 12 feet wide. This shrub, of which a figure and notice are given in another column, was covered with its pale yellow male flowers in catkins as much as 9 inches long. So numerous, in fact, were they that the dark-green foliage was all but completely hidden by them. No one who saw such a plant could fail to recognise its suitability for covering a wall, and desire to see it more extensively employed for that purpose, being ornamental by its foliage and much more so by its flowers, especially when these are produced by a wall-trained plant on which, as at Battle, they appear to attain twice the length they do on shrubbery plants. Stauntonia latifolia, a greenhouse plant from China, trained against the same front of the house, had attained a height of about 20 feet, but had not fruited, though another plant had done so where the aspect was south.

What is supposed to have been the Guest House is a detached building covering an area 195 feet long and upwards of 40 feet wide, but all that remains of it are two octagonal turrets at the west end, and the niches of the windows at the sides, now used as seats, those on the south commanding a view of the battle field, Telham Hill in the distance, and on a clear day of miles of country besides. The space once occupied by the rooms devoted to the use of the guests and their attendants is now laid out in three neatly-kept grass plots surrounded by gravel walks. Considering that the religious establishments in early times served also as houses of entertainment for travellers, more especially those of the higher ranks, it is not surprising that so large a building should be devoted to their accommodation; and from the fact that beneath the



Battle Abbey—Cloisters.

whole is a range of cellars which even a great London wine-merchant might envy, it may be inferred both that the visitors were many and the cheer good. Of the dormitory, which runs north and south, and is 154 feet long by 35 wide, part of the walls are still standing, and beneath it are vaulted chambers, supposed to have been the living-rooms of the monks when not engaged on their religious or gustatory duties, for the performance of which last an ample refectory was provided. However, it is not for us to dwell upon these details, which belong more to the province of the antiquarian than of the horticulturist, but in a notice of such a place as Battle Abbey the remains of the past are so intimately connected with the present—in fact, serve as landmarks to it—that it is next to an impossibility to dissociate the one from the other. Nevertheless, we cannot but remark that those old masons had done their work well, not only in beautifully arched crypts, but in buttress facings, where their chisel marks remain fresh and clear at the present day, though the intervening work was of a rougher nature.

We have now reached the east side of the Abbey, where there is a garden laid out in small beds hedged-in by Box neatly kept to 6 inches high by 9 inches wide at top, with raised beds in the centre. The accompanying is a view of this side of the Abbey* with its cloisters, including also a portion of the garden referred to. In summer it is filled with bedding plants, and the broad Box edgings to the beds give it a unique appearance. We noticed here some remarkably fine Laurustinuses 18 feet high. The Laurustinus appears to luxuriate at Battle, flowering freely, and attaining a large size. The next garden is a square with an ancient Yew hedge 15 or 16 feet high, forming a dark, sombre wall on one side; Laurels and Sweet Bay nearly 20 feet in height are the other two sides. The ground within is laid out as a rosery, there being in addition a number of Camellias planted out, and two beds of Lilium speciosum (lancifolium of gardens) rubrum and album, which have been there for ten years; all the protection given is a covering of ashes over the bulbs in winter. At the back of the Yew hedge referred to is a row of Yew trees equally ancient, and the branches of the two form a Gothic arch over a walk running the whole length of the back of the walk, and in some cases the branches are naturally inarched. This walk has a quaint, rustic character, as well as being venerable by its age. The Monks' Walk, parallel with the boundary wall, is also interesting, and from the raised walk on the wall one can see miles of the surrounding country. Just pausing to notice another Yew-bordered walk, the trees not so old as by that previously noticed, we come to the site of the High Altar erected on the spot where Harold fell, and near which are several magnificent old Cedars of Lebanon, and a fine Deodar about 40 feet high. Her Grace has herself tastefully planted Ferns and herba-

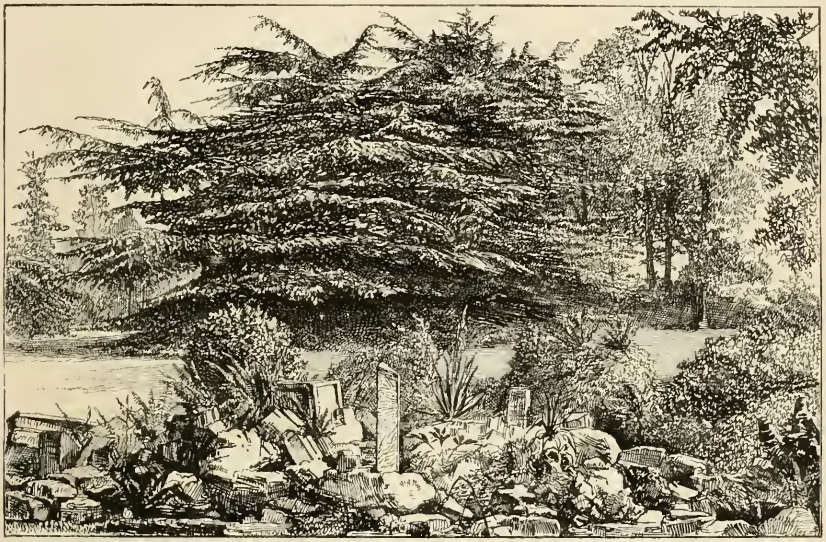
* The two views which we give were obligingly furnished to us by Mr. Mann, Photographer, of 13, Wellington Place, Hastings.

ceous plants among the ruins at this interesting spot (of which we give a view), as well as elsewhere in the grounds. A little further on we come to a picturesque walk with fine old Lime trees on one side, and behind these is a rustic ice-house, which holds about one hundred loads, and keeps the ice in excellent condition throughout the season. Here a heathery is being formed, and beds of hardy Azaleas have been planted as kindred subjects. A few Gladioluses are put in to give life in summer.

On the south side of the Abbey, where the old stabling, offices, and houses were, the ground has been converted into lawn and planted with Araucarias, Pinus insignis, Wellingtonias, and other Conifers, which are in a thriving condition, and some of them are already fine specimens. A new drive to the station has also been formed through this part of the grounds, the only drawback being that portions of the village are too plainly visible in parts, but this will be remedied in time by the growth of the trees which have been planted as a screen.

On the south side of the Abbey a new terrace 180 yards long has been recently formed. The place of a terrace wall is supplied by a dense low Holly hedge 3 feet wide at top, with standards on 6-feet stems at every 30 feet. Along the walk next the hedge, and rather interfering with its line in one or two places, are three fine trees of the Scarlet Thorn, but though, as stated, they interfere a little with the walk, the trees have been wisely preserved; it would, indeed, have been a pity to have touched such fine old trees, so beautiful, too, when in blossom.

Ascending to another terrace we reach a walk 14 feet wide and 200 yards long, with, on the side next the park, we believe, the finest Laurustinus hedge anywhere to be met with. It is 4 feet high and from 6 to 8 feet in breadth, with standards at every 30 feet or so, and is perfectly furnished from bottom to



Ruins of High Altar.

top. It must be a beautiful sight when in flower. Here there are compartments for bedding plants, of which from 25,000 to 30,000 are required. The walls of the Guest House, which is at the back of this terrace, are covered with Monthly Roses, Oleanders, and Clematises, and when the Roses are in blossom the effect must be very fine. But more noteworthy than the Roses are several plants which elsewhere are kept in greenhouses. Among these are Stauntonia latifolia more than 20 feet high—this fruits well; the Pomegranate, which flowers but does not fruit, Mandevilla suaveolens covering 25 feet of wall, and Poinciana gracilis. As a measure of precaution, these, Coronilla glauca coming into flower, Aloysia citriodora, and some others of the more tender subjects, were covered with spruce branches. That useful early-flowering Jasminum nudiflorum unfortunately a scentless one, was gay with a profusion of its golden blossoms. The terrace walk terminates at a gateway flanked with two handsome specimens of Cupressus macrocarpa.

We next enter the conservatory, in front of which are a set of beds that are kept gay in summer with Clematises and bedding subjects. This conservatory is upright-sided, with a half-curvilinear roof, and measures 71 feet in length by 17 in width, and the same in height. Great credit is due to Mr. Jack, the excellent gardener, for the gay appearance which it presents, more especially as he has not a great extent of glass from which he can draw unlimited supplies of plants. Among the inmates were some fine pyramidal Camellias standing 8 feet high blooming freely, Azaleas, Epiphyllums grafted on Pereskia stocks so as to form standards 2 to 3 feet high, Begonias, Epacrises, and an excellent collection of miscellaneous flowering plants. Tacsonia Van-Volxemi is trained on the roof for shade, and among other climbers Lapagerias, Stephanotis, Passiflora princeps, and Fuchsia corymbiflora. Two very fine specimens of the Abyssinian Banana, Musa Ensete, in tubs, give a tropical air to the house, not the least notable ornament to it being handsome Orange trees, one of which in particular was loaded with rich golden fruit, not sour half-ripened fruit, but fit for the dessert.

Before quitting the pleasure grounds we must notice a new walk being made, skirting the park and passing through a well-wooded portion of it between the trees and Ivy-covered banks. This when finished will be upwards of half a mile long, and will, no doubt, add a fresh charm to this old place.

The kitchen garden, including the outside slips, is two acres and three-quarters in extent, and is new, having been made since Mr. Jack came to the place, the old garden being now an orchard and used for growing early Potatoes, &c. The walls are English bond, 14 inches thick, 12 feet high, and surmounted by a coping projecting 8 inches. The Peach, Plum, Cherry, and Pear trees are trained with great neatness and care, and look very healthy and fruitful. Apricots, however, are apt to die off in the unaccountable manner so often complained of.

The vineries are three in number, in addition to which there is a Peach house. They are all lean-to's, 30 feet long by 12 wide. The Vines are all planted inside, but the front walls being arched the roots can pass outwards. In the early vinery Mr. Jack had grafted on one Vine the Golden Hamburgh, Muscat of Alexandria, and Canon Hall Muscat, but he found that the Muscat of Alexandria had robbed the Golden Hamburgh. Mr. Jack states that by notching the wood of the Canon Hall he finds it sets as freely as the Royal Muscadine. The trees in the Peach house are trained on a curved trellis in front, and on the back wall as well. They looked healthy, and gave promise of bearing an abundant crop.

The other houses consist of a span-roofed Cucumber house 30 feet by 9, and 9 feet high, heated by two flow-pipes one on each side, and two returns one under each bed. Besides Cucumbers, Dwarf Kidney Beans and Asparagus are forced, the former in a heated pit and in the Peach house as well, though not desirable inmates for such a structure, and Mr. Jack would gladly dispense with them there. The other pits are filled with bedding plants, Lettuces, Cauliflowers, &c. There is a Mushroom house, heated by a 3-inch pipe, in which fine crops are obtained, especially from the beds on the floor; Sea-kale and Rhubarb are also grown here. In the fruit-room, which contained more fruit than some even in larger gardens, we noticed that the fruit was laid on dry Fern spread over the open-slatted shelves, and in this way it keeps exceedingly well.

We have only to add that the out-door crops and general keeping of the place were most creditable to our friend Mr. Jack, the careful and painstaking gardener, and we take this opportunity to thank him for his kindness and the trouble he was at in pointing out all that might interest us and our readers.

WORK FOR THE WEEK.

KITCHEN GARDEN.

The preparation of the quarters intended for main crops must be persevered in whenever the soil is dry enough to admit of its being trodden on without being too much consolidated. This is of great importance in the case of heavy soils, and those who have such to deal with should take advantage of every dry day to prepare them. It will also be advisable to defer sowing main crops for a week, or even a fortnight. On light dry soils, on the other hand, the sooner the main crops are in the better, because such soils are most liable to suffer from drought should it occur; therefore the sooner the crops can be well established the better will they resist dry weather. If, on the contrary, the season is wet they will be in the best possible condition to profit by it. Make a small sowing of Grange's Early White *Broccoli;* the sowing made now will come in useful by-and-by. Sow another patch of early *Cabbage*, also some Red Cabbages for winter supply. Prick-out the young seedling plants of *Cauliflowers* and *Lettuces* either on a warm border or a gentle hotbed, and shelter them for a time with hoops and mats. The first sowing of *Celery* must also be pricked-out as soon as it can well be handled. Make a first sowing of the true Drumhead *Savoy*. Sow a good breadth of the best Curled *Parsley*. On light soils lose no time in getting in the main crops of *Peas* for summer, together with a few of the later kinds. The ground on which the Peas are sown comes in well for Celery, a width of 6 feet being allowed from row to row; but this distance might be increased with great advantage, and the intervening spaces sown with *Spinach*, early *Turnips*, *Radishes*, and *Lettuces*, all of which would come off in time for the Celery.

FRUIT GARDEN.

Pruning should now be quite finished in every department, and whatever nailing is left undone must be completed immediately. See that new-planted fruit trees are properly staked and mulched, and after high winds it is necessary to look round them and press the earth gently to the base of the stems. All danger of very severe frost being over, Figs may have the covering completely removed, and be neatly pruned and nailed. Do not crowd them with wood.

FLOWER GARDEN.

The digging of flower borders must now be commenced in good earnest, in performing which use the fork in preference to the spade. All kinds of herbaceous plants may now be planted, either to fill up empty spaces, or to make new plantations in borders which have undergone a course of preparation this season. Pay particular attention to the arrangement of the plants according to height, and colour and succession of flower. Bear in mind that a profusion of bloom alone does not make a flower border beautiful and attractive, unless the plants are disposed in such a manner that harmony of colouring may prevail throughout the whole. Proceed with the planting of hardy Roses. If the plants are strong prune their heads according to the classes to which the varieties belong; if weak, cut them back to two or three eyes, shorten all long and straggling roots, and prune away such as may be bruised or broken. If the ground has not been prepared as previously directed I would recommend pits to be made, and to two pits give a wheelbarrowful of rotted dung and good loam, well mixed. By all means avoid deep planting. Have a quantity of stakes and tar-twine close at hand, and stake each plant whether it is a dwarf or standard; many losses are incurred and much injury sustained when this is neglected. Continue the pruning and nailing of climbers, also arranging and tying such as are against trellises, verandahs, &c. Due attention must be paid to the sweeping and rolling of walks and turf. This should be done at least once a-fortnight at the present season. Those walks which have become dirty upon the surface and are overrun with moss should be turned to the depth of 2 or 3 inches. By this means they will have the appearance of having been newly made. The beds of Tulips being great favourites of the amateur will now require great attention, the foliage being generally well above the surface, and consequently liable to the vicissitudes of our changeable springs. At this season a rainy day is often succeeded by a sharp frost, or hailstorms mercilessly pelt the rising plants. Some florists think it is of little use to cover, supposing the Tulip to be sufficiently hardy; but when the leaves form a kind of cup which holds a considerable quantity of water, which in a frosty night is turned into a mass of ice, enveloping the rising bud, I think it will be allowed that protection in this case at least is advisable. It is desirable to stretch a thin calico over the bed at night if frost is expected; this will be found sufficiently effective. Canker will often make its appearance on the foliage; this must be carefully removed with a sharp knife, exposing the part as much as possible to the air, but keeping a shade over it for a few days. Now is a very trying period for Carnations and Picotees; many layers that have apparently withstood the winter with impunity will often wither and die, and if examined they will be found not to have made a single fibre since they were potted last autumn, showing the propriety of early potting, in order that the plants may, by being thoroughly established, be enabled to stand the weather. Continue to shade the rising blooms of Polyanthuses on seedling beds. If pin-eyed flowers show any good property in a marked manner, cross-breed that variety and save seed from it.

GREENHOUSE AND CONSERVATORY.

We have previously recommended the removal of plants from various houses, to aid in embellishing the conservatory; their beauty past, they must no longer be allowed to remain, but should be restored to a situation suitable to encourage a healthy growth, and consequently an assured provision of flower-buds for a future season. It is a great advantage to possess a pit which can be appropriated to this purpose. When it is found that plants are much exhausted by early forcing they should be supplied with fresh and suitable soil. Allow no essential variations in the temperature; 60° should be the average. The occupants of the greenhouses will require from time to time increased pot-room to follow the extension of the leaves and branches. Fuchsias, Pelargoniums, and Calceolarias must receive the benefit of this rule.

STOVE.

In this structure much is to be done every day. The plants of Poinsettias, Euphorbias, Clerodendrons, Aphelandras, Gossypium, and Gesnera oblongata and longifolia that have previously been cut down and are now breaking should be shaken out and repotted in good, open, rather light, fibrous, turfy loam, coarse sand, and a good portion of charcoal, which all plants delight in. Prick off carefully into small pots, as they appear in the store pots or pans, the various kinds of Achimenes, and put in another batch, likewise various Gloxinias. The whole of the above delight in a moderate bottom heat at this season. See that the plants of Gongoras, Stanhopeas, some of the beautiful Dendrobiums that are now making their season's growth, are not suffering from want of water; it is sometimes found essential to soak them once or twice in the tub of tepid water. Syringe carefully about the blocks and baskets that have plants of Vandas, Saccolabiums, Sarcanthus, &c., growing or adhering to them.

PITS AND FRAMES.

Pot off into 3-inch pots plants of the Bouvardia triphylla and splendens which have been raised from small portions of the roots; replace them in a kindly heat. Those who have not as yet attended to the propagation of plants for bedding-out, must now begin with all possible speed to put in cuttings of Salvias, Petunias, Fuchsias, Verbenas, Scarlet Geraniums, &c., so as to have good plants for bedding-out in May. Pay due attention to watering and topping-back weak and straggling shoots, so as to form robust bushy plants. If snails or slugs have found snug quarters in this department they will do much mischief during the mild weather, if not looked after and destroyed.—W. KEANE.

DOINGS OF THE LAST WEEK.

Preserving Seeds from Birds, Mice, &c.—At one time I found it vain to expect an early or even a second crop of Peas unless I planted them out when the plants were from 3 to 5 inches in height. Even before the Peas reached that height wire netting proved ineffectual, as the vermin got in one night and spoilt some rows. I found that coating seeds of all sizes with a colouring of red lead saved them from the attacks of all intruders. This season, however, the rats have been most unmerciful on a piece of Beans, notwithstanding the usual red colouring, in consequence of a number of changes here, which have rendered us more liable to their visitations.

Sowing Seeds in wet soil. In unusually wet seasons like the present seeds should not be sown too deeply, nor covered up excessively in stiff soils, as in that case they are almost sure to rot. We have known whole rows of Peas never come up at all, in consequence of having been too deeply sown. We certainly approve of sowing Peas and Beans in a somewhat deep furrow, but then the seeds are covered very slightly—not more than from 1 to 2 inches in such a season as this. In extreme cases we can, in the garden, pat the seeds gently into the ground, and cover them over with some fine dry material. Moist soil beneath and rather dry soil above are, perhaps, the best of all conditions for a free healthy germination, as the moisture swells the seed, the air gets access to it, and the covering keeps out the light. We know there are seeds which, if they have moisture, will germinate in full sunshine. We are, however, convinced from our own experience that many seeds are much injured by free exposure to sunshine before they are sown, whilst many more are injured by being sown and covered too deeply in moist soil, so as to exclude the air as effectually almost as if they had been surrounded with a piece of putty. Sow, therefore, in well-stirred, well-aired, rather dry soil, and the rains will percolate freely, and the seed and seedlings will be benefited rather than otherwise. We have known instances in which different gardens were supplied by the same seedsman, the seeds taken out of the same bag, drawer, or paper, saved and stored at the same time, and therefore as much as possible alike in quality, and yet almost totally unproductive in one case, and perfectly good in the other.

The same fact holds true with respect to all our more artificial sowings in pots and boxes under glass, such as those of Lobelias, Calceolarias, Chinese Primulas, and Cinerarias. I do so thoroughly believe it to be the true interest of our seedsmen to send out the best article they can command, that when I have anything like a failure, instead of blaming a tradesman, I think it better to inquire if there has not been carelessness and inattention on my part.

One of the chief secrets of success, therefore, in sowing, especially under glass in pots, and when using such small seeds as those of Calceolarias, is to have the soil beneath moist enough to secure germination and rooting, and the covering fine and rather dry. When sowing any of these small seeds, or larger seeds, as Primulas, &c., drain the pot or pan well fill it with three sorts of soil, the roughest at the bottom, the finer above that, and finest at the top, pressing it down so as to be within an inch of the rim. The pots are then thoroughly watered, or set in a tub of water until all air-bubbles cease. This secures a thorough moistening. The pots then stand to drain for twenty-four or thirty hours, when the surface will be a little dry. Some dry sandy fine soil is scattered thinly over and slightly pressed, the seeds are then sown, another slight sprinkling given and pressed level, a square of glass put over the pot, and the glass shaded. In many cases, when the pot is set in a bed, the seedlings will be up and strong before any watering is wanted.

One word more as to the safety of such small seedlings. If moisture is needed avoid watering overhead, but sail the surface with water by pouring it on a tile or shell near the side of the pot. Give moisture by any mode, except pouring it over the top of the young plants, however fine the rose be, and you will take the best means for preventing seedlings that come up thick foxing, or rotting, or shanking-off at the surface of the soil. Another preventive is to prick-off these seedlings as soon as you can handle them, singly or in little patches, as the patches may be divided singly or in pairs afterwards. Many a fine pot of valuable seedlings has been destroyed by a careless overhead watering.

Cucumbers in hot-water pit versus those in frames with fermenting material beneath them.—As respects the earliest spring-planted Cucumbers, we have amused ourselves in holding the balance evenly, and for years there was little to draw between the two modes. This year the pit will have all the first running, as we have only turned out good strong plants in the frames on the 22nd, whilst those in the pit are running and showing freely. For the benefit of beginners I may mention the causes of delay, the plants being nearly of the same age. First, we made the beds a little later than usual; secondly, the want of sun heat, and the more free use of leaves, kept the heat from rising sufficiently; and thirdly, this was partly owing to the mode we have more than once described of putting all the soil we require into the bed at once—a mode attended with much future economy. The frames we have left average 16 inches in depth at back, and 10 inches in front. These, therefore, to give ample room to the foliage, are above the level of the soil. The frame stands upon a wide ridge all round, leaving a trench in the middle 16 or 18 inches in depth, and from 24 to 28 inches in width. A board is placed lengthwise at the back and front of this trench, between which the soil is placed; the boards on each side confine the roots and prevent them running into the decomposing material at the sides. In this dull weather it took more time than usual to heat this trench of cold soil, but when the inside temperature showed 60° in the morning, and the soil was nearly 80°, we planted. As regards simplicity there are several advantages in this mode. A shallow box can be made to answer the purpose. Only about one-third of the quantity of soil is required when contrasted with a bed earthed over in the usual way. The earth is put in at once, and there is no anxiety in watching and waiting for a favourable time for earthing-up the plants bit by bit, and very likely injuring them more or less. The earth thus sunk is placed on the lowest level of the bed, and therefore there is scarcely any likelihood of root-burning, that evil from which so many beginners suffer, whilst the fermenting material round the trench keeps the roots comfortably warm. Lastly, the limited soil and the curbing of the roots by the boards tend, truly, not to huge parasol leaves, but to an abundance of good Cucumbers.

We have satisfied ourselves over and over again that a width of from 24 to 30 inches of soil in the middle of a 6-feet-wide frame, with a few rich surfacings during the season, will yield more Cucumbers than if the soil had been 6 feet wide. Our most prolific crops, even in hot-water pits, are chiefly owing to the little room given to the roots.

Heating Pits and Houses by Hot Water.—In answer to many inquiries, we would remark on our experience of the importance of not being too sparing of piping. Some tell us how soon they can make the water boil in their pipes, and the great heat thus given off. We think it much better never to have the water in the pipes within some 30° of the boiling point. I have several times alluded to the superiority of little houses over pits, chiefly because one can work in them. Another advantage is that they contain so much more air that the temperature is less liable to sudden changes. In addition to these advantages, a lean-to Cucumber house, or a span-roofed one with an inclination steeper than 45°, has a great advantage in the winter months over a pit, owing to the greater amount of light presented to the plants. Our present little Cucumber pit was originally a common pit 6 feet in width, 3¾ feet above the ground at the back, and 1½ foot in front. We made a little house of it by forming a sunk pathway at the back 18 inches wide, and 7 feet from the floor to the top of the wall, and ran a wall along to make a bed in front. Now what we want others to profit by is our faulty example. We had two 3-inch pipes laid in rubble for bottom heat, and that does well, but we only had two for top heat. Such piping would do very well with little or no protection to the glass from March to November. But for winter Cucumbers we could not safely make it do without a

covering of the glass at night, and protecting the back wall with a thatching of straw, or even at times placing a lining of fermenting material against it. To be safe without such covering in midwinter we would need double the piping for top-heat. If we were to do the work over again we would use 4-inch pipes, two beneath, and at least three above for top heat. The more confined the space the more will Cucumbers suffer in winter from having the heating pipes over-warm. Many people think they are very economical if they can save a few feet of piping. Whenever pipes must be made very hot the economy is actual waste. We know of many instances where in moderate-sized houses the saving of 40s. in piping has occasioned the spending of more than that for additional fuel every year, and then the enclosed atmosphere was anything but so genial as a further supply of pipes, and these less heated, would have rendered it. We have made our pit do very fairly, but with more piping we would have saved extra labour and care. We could furnish more examples to the same effect.

Our general work has been chiefly a repetition of what has lately been alluded to in detail. In the kitchen garden we took the opportunity in a dry day of sowing Peas and Beans, and planting Potatoes on a raised bank, and in such mild weather giving more air to these and other things in pits and frames.

In the fruit garden, besides pruning and washing out of doors, we were engaged in cleaning and washing the walls of the orchard house and late vineries.

In the ornamental department, besides moving and transplanting out of doors, we have done much potting inside, and examined and repotted as needed Camellias that had begun to make fresh growth after blooming. Most Justicias, Eranthemums, and similar plants have been pruned back and placed in a rather cool place to break afresh, when they will be repotted in the same-sized pots. Poinsettias have been laid down beneath the stage in a cool house to keep them alive, and allow them to become dry before pruning them back. Many plants of a similar nature require little trouble until they begin to grow. Few things in winter are more gorgeous than huge heads of these Poinsettias. Even when a head begins to fade, the leaves that are fresh come in well for dressing. For fine heads there must be strong stems. We have had some little plants in 4-inch pots with two or three small heads, and the plants only from 6 to 9 inches in height, that looked very nice. The heads, of course, were small. Potted Gloxinias to obtain the flowers for dressing.—R. F.

TRADE CATALOGUE RECEIVED.

George Yates, 29, Little Underbank, Stockport.—*Descriptive Catalogue of Select Vegetable and Flower Seeds.*

TO CORRESPONDENTS.

*** We request that no one will write privately to any of the correspondents of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely to The Editors of the Journal of Horticulture, &c.*, 171, *Fleet Street, London, E.C.*

N.B.—Many questions must remain unanswered until next week.

Peach Blossoms Falling (*Peach*).—The bearing wood was not thoroughly ripened, either from being over-shaded or ill-ventilated in the orchard house.

Maréchal Niel Rose-buds (*B. D.*).—We should advise you to leave the young buds and ends of the Maréchal Niel on some of the strongest shoots for the sake of experiment, as, if the weather do not soon materially alter, the buds may come to perfection. Thin out weak shoots, and shorten only slightly the stronger ones on which you do not leave the buds. As a rule, Maréchal Niel does not require much pruning. Our weather of January and February of this year is equal to that of March and April of last year.

Mr. Fountaine's Fruit House.—"In the report of the Horticultural Directors, page 144, it is stated that in the Rev. Mr. Fountaine's house at Chiswick, where the Madresfield Court Grape was so successfully grown by Mr. Barron, there is no provision of any kind for artificial heat. Will you kindly state, to prevent mistakes, that although the heating apparatus has not yet been applied to the Chiswick house, artificial heat is necessary for growing properly stone fruit, flowers, and Grapes in these vineries, and they are prepared accordingly?—John Fountaine."

Twelve Good Varieties of Potatoes (*K. M. H.*).—Hogg's Early Coldstream, Turner's Union Round (early rounds); Mona's Pride, Myatt's Prolific (early kidneys); Daintree's Seedling, Dalmahoy (round, second early Regents); Rivers's Royal Ashleaf, or Veitch's Improved Ashleaf, *Almond's Yorkshire Hero (second early kidneys); *Gryffe Castle Seedling, *Rintoul's New White Don (round, class Regents); *Paterson's Victoria, *Dean's Excelsior (kidneys). The asterisks denote good keepers, and sorts which require to be planted 3 feet 6 inches apart row from row. Good coloured sorts are Paterson's Scotch Blue (round, second early); *Paterson's Alexandra (kidney, late); and *Dean's Cottagers' Red. A Potato fit to displace Hogg's Coldstream is a new sort which the Messrs. Veitch are just sending out, called Veitch's Early Perfection. Fenn's Onwards, by the same firm, is also a second-early garden variety of good quality. The much-vaunted American sorts are no longer grown by me. I cannot recommend them for table purposes. As great croppers or for very poor, sandy, light soil they may be approved.—Robert Fenn.

Lightening Clayey Soil (*Lobelia*).—Lime, chalk, bricklayers' rubbish, coal ashes, and sand, one and all, if mixed with your soil will render it more friable; but the most effective treatment, and at the same time destructive of weeds and vermin, is to pare and burn the top spit of the entire surface, and to spread and incorporate the ashes with the next spit.

Summer Use of Garden Frames (*F. J.*).—The most profitable crop would be Cucumbers, and there is no necessity for more than a moderate bottom heat, so as to give the plants a start. Though there is a hard bottom, we do not know why you should not put in a depth of 12 inches of fermenting dung at the back, gradually sloping it to 8 inches in front, treading firmly, and put in 9 inches of soil at the back and sloping it so as to be 4 inches in front. If you were to have a wood partition you might employ two lights for Melons. The soil for the Cucumbers should be a good, rich, light loam, enriched with leaf-soil or old manure; and for Melons strong loam trodden firm is most suitable. The seed should be sown early in April, in a brisk bottom heat of 70° to 75°. When the plants show their rough leaves they should be potted-off in pairs in 3 inch pots, and be returned to the hotbed. When they have made two rough leaves, take out the points of the plants. The frame should be prepared a week previous, so that the soil may be warmed for the reception of the plants at the beginning of May. One plant will be sufficient to put under each light, selecting the better of the two and cutting the other away. If the frame is not clear of bedding plants by that time, you have only to time it so that the plants will be a month old when you have the frame ready. You may have Cucumbers in about six weeks from planting, and they will continue to produce up to October. You may have Melons at the end of August or early in September. Cox's Volunteer is a very abundant-bearing and excellent Cucumber. Gilbert's Improved Victory of Bath Melon is a fine green-flesh, Heckfield Hybrid is also a free-bearing sort.

Tacsonia Van-Volxemi Culture (*Tacsonia*).—Merely thin out the long and bare shoots, leaving the shortest and strongest, especially those from the base of the plant. Leave a good number of shoots for training-in, and what you do prune cut to within a joint of the place whence they originate. Remove the surface soil, not going so deep as to injure the roots, and replace it with a 2-inch dressing of loam from turf, leaf soil, and well-rotted manure in equal parts. Water with liquid manure once a-week from May to September, taking care not to use it too strong.

Ficus elastica Culture (*W. H.*).—The lower leaves have probably fallen from old age, for though the plant is evergreen, the old leaves fall when new ones are formed. If your plant is taller than you wish, you may cut it down as low as you like, and it will break again freely. The part removed may be made into cuttings, taking the end with two joints and the growing point, and the rest may consist of two joints each, removing the leaf from the lowest joint and cutting across below it. Insert the cuttings singly in small pots, in a compost of two parts sandy loam, one part sandy peat, and one part silver sand, making a hole for the cuttings in the centres of the pots, and dropping a little sand in the hole; then introduce the cuttings and fill all round with silver sand. Place the pots in a brisk bottom heat of about 75°, and a top heat of 65° to 75°, keeping close, moist, and slightly shaded from bright sun. When rooted remove them to a stove or vinery at work, potting them in larger pots as those they are in fill with roots. The plant may also be propagated by eyes. In winter it requires to be kept rather dry, and in a temperature of 50° from fire heat.

Forcing Pit (*J. G.*).—The manure or leaves should be changed about every six weeks, placing some fresh on the top every ten days, in order to keep it to the height required. Of course, there is no necessity to change the fermenting material so long as it retains sufficient heat, and one side only should be changed at a time, so that the plants may receive no check, as they would do were you to remove both linings at once. The space under the bed should be filled with hot dung or fermenting material. 10 inches of soil should be provided for the Cucumbers or Melons, and its surface should be about 15 inches from the glass.

Musa for Warm Greenhouse—Areca lutea (*Omega*).—Musa assamica, a dwarf-habited sort from Upper Assam, would do; also M. Cavendishii and M. Ensete if you have room. Areca lutea we do not know, but A. lutescens is in most of the principal nurserymen's catalogues. It would thrive in your greenhouse.

Colours of Geraniums (*Pro Bono Publico*).—1, Mrs. Pollock, leaves green, zone bronzed red, dashed with crimson, golden margin; flowers crimson scarlet; 2, Christine, light green leaf without zone, flowers rosy pink; 3, Attractive (new), we have not seen; 4, Amy Hogg, light green leaf with faint zone, flowers bright purplish rose; 5, Buijo, leaves green with rosy scarlet flowers. The best use for a frame 8 feet long and 3 feet 6 inches wide would be planting it with Cucumbers or Melons. Two plants of either would be sufficient. The frame would be very useful for raising plants from seed and for cuttings, and might afterwards be used for either Cucumbers or Melons.

Climber for North Wall (*F. H.*).—The wall being a high one, we should advise Virginian Creeper or Clematis Vitalba. If you wish for an evergreen, Ivy is most suitable. If only a low wall, then Jasminum nudiflorum or Cotoneaster microphylla, the latter an evergreen.

Lilium eximium Thinning (*A Constant Subscriber*).—Do not remove any of the shoots, but top-dress with rich compost without delay. The bulbs are not weakened by the shoots not flowering; on the contrary, they are strengthened; in fact, the better leaf-growth you secure the better is the prospect of flowers another year if the growth is well ripened.

Select Camellias (*C. B.*).—Fimbriata, white; Mrs. Abbey Wilder, white, striped with carmine; Valtevaredo, rose; Wilderi, rose; Storyi, rosy pink; Rubens, deep rose; Mathotiana, crimson; Monarch, scarlet; Princess Frederick William, carnation striped; La Pace, white, striped scarlet; Giovanni Santarelli, red, white blotch; and Conspicua, scarlet, semi-double, fine.

Beauty of Hants Apple (*A Subscriber*).—The Beauty of Hants is so similar to a well-coloured specimen of Blenheim, that we have been unable to distinguish the difference between them. For your purpose of a description we refer you to that variety.

Gardeners' Examinations (*A. E. J.*).—Gardeners may be examined by the Royal Horticultural Society of London, and you will be furnished with particulars if you write to J. Richards, Esq., Assistant Secretary, Royal Horticultural Society, South Kensington. The great advantage of passing honourably such an examination is, that it is known that you have a theoretical, and so far a practical, knowledge of gardening. If there has been a disadvantage, it has been from the fact, too general, that young men cram for such examinations, are apt to trust too much to certificates, and hence to be outshone in practice by plodding attentive men, who have far less real scientific knowledge. The test is results.

Vale Royal (*Constant Subscriber*).—We had no scale.

Gardener and Helps (*M. Denton*).—We should say, at a random guess' that three men would be required for such a place, but much depends on the quantity of grass, how it is kept, and on the means for keeping the conservatory gay in winter, as there seem to be little means for that purpose, except the Melon and Cucumber house. Pleasure grounds can give no definite idea. According to the grass and beds, one place of the same size may require three times more labour than another. Then there is such a difference in keeping a place tolerably neat, and having it always in first-rate order. We have known places such as you describe managed by two men. We have known places of similar size underworked with six men.

Bulb Show (*Coleus*).—We know of none except those at the Royal Horticultural and Botanic Societies.

Vine for Stable-yard (*A Regular Subscriber*).—If the soil is not a light friable loam it will be necessary to remove it to a depth of 3 feet, but if it is so it will only be necessary to take care that water does not lodge. If wet, drain the ground efficiently, and trench it 2 feet 6 inches deep, mixing with it a moderate amount of manure and some old lime rubbish; or, failing that, broken sandstone or freestone. If the soil is very strong take it out to the depth of 3 feet for about 6 feet in width, placing 9 inches of drainage at the bottom—any stones or brickbats will answer—and below these there should be a drain. The border may be formed of the top 3 inches of a pasture, the soil a light loam, and to every ten parts of this add four of lime rubbish from an old building, two of manure. one of charcoal, one of crushed bones, and two of sandstone or freestone not broken very small, but without removing the small parts. Mix the whole well, and then place it in the border, 9 inches higher than the intended level, to allow for settling. You may cover the border with gravel, but it is well to leave a space of a foot or 18 inches next the wall. Black Cluster or Royal Muscadine is the variety we would plant. Of either you can procure a Vine with a cane the length you name, at any of the principal nurserymen, but we would not plant until the Vine had begun to grow; then turn it out of the pot, spread out the roots, and cover them about 6 inches deep with fine soil, giving a good supply of water at a temperature of 70°.

Roses—Manuring, &c. (*T. W. W.*).—I did not speak of superphosphate, but of nitrophosphate blood manure. I advise you to pulverise the nitrophosphate, put as much as a man can hold in his hand into three gallons of water, and pour the contents over the roots of six plants. That is how I use nitrophosphate. Put the stuff on when the plants are in a growing state. Cut down some of the naked stalks of Marguerite de St. Amand and Madame Clémence Joigneaux close to the ground, and merely shorten the other long stems by instalments. Cut down closely all weak growers. Gloire de Dijon could not have given cracked blooms for want of water last season. You should have stirred the ground, it is a good plan whether the season is wet or dry. I keep the hoe going among my Roses. Charles Lefebvre is a fine grower here. I have at least 170 plants of it on Manetti—all good growers. I consider Charles Lefebvre and Maurice Bernardin, taken at all points, to be the best among crimsons.—W. F. Radclyffe.

Pruning Maréchal Niel and Souvenir d'un Ami Roses (*St. Edmunds*).—They do not require to be cut hard. If their wood is weak and bad, cut them down tolerably closely, otherwise only cut out the weak wood and shorten the remainder a little.—W. F. Radclyffe.

Petunias in Pots (*An Amateur*).—You do not say in what size of pot your plants are, but we presume them to be in 3 or 4½-inch pots, and to have been stopped; if not, stop them now to about four joints. You will thus secure two or three shoots. Shift the plants when the shoots are an inch long into 6-inch pots, and when the shoots have three joints take out their points, and again whenever those resulting from the stopping have grown to that extent, up to within ten weeks of the time of exhibition. Have the plants in their blooming pots by the middle of June, shifting into 8-inch, and finally into 10-inch pots. The drainage should be good, and the compost may consist of two parts light fibrous loam, one part leaf soil, half a part of old manure, and a quarter of a part of charcoal, from the size of a pea to a hazel nut, and silver sand, well mixed, but not sifted, though it must be broken small. Water moderately, and only when dry, but before the foliage flags, and then give a thorough supply. When the pots are full of roots weak liquid manure may be given at every alternate watering. Keep the plants in a cold pit after April, not more than 16 inches from the glass, and admit air abundantly, excluding frost. In mild weather the lights may be drawn off after May, but when the plants are advancing for flowering the lights will be needed to protect them from heavy rains, yet admit air abundantly. To have Gesnera zebrina in good order at the time named, start the plants at once, and grow them in a brisk heat with plenty of moisture.

Boiler for Greenhouse (*A. Aitken*).—Our opinion is that not one beats a saddle-back boiler. If not much more than 3 feet in length we prefer cast iron. If much larger we prefer wrought iron, but we have no great preference.

Bottom Heat from Hot-water Pipes (*A. D.*).—By enclosing the pipes in a close chamber you will have bottom heat in the bed over them. The proposed openings are good, but the doors must fit closely. As the pipes are heated by gas we would propose the top of the chamber, otherwise the bottom of the bed, to be of zinc or galvanised iron, and without perforations. The supports across may be of wood or iron, and the closer they are, say 18 inches apart, the less will the iron give way. We would have the zinc vessel turned up at the edges for from 1 to 2 inches, so that a little water would stand at the bottom when required. A few pebbles or bits of charcoal might be placed along the bottom for the bottom of the pots to stand on, with a little moisture beneath them when deemed necessary. There is not the slightest danger, as you have been told, of the zinc melting. We would use the cocoa-nut refuse between, not below, the pots. The zinc may be nearer the pipes than 3 inches. Your success will much depend on having hand-lights, or moveable wooden boxes with glass tops, over the bed.

Crocus Stigma Prominent (*R. K. C.*).—The white Crocus flowers you enclosed to us do not differ from the usual type, only the stigmas are very prominent: their deep yellow or orange colour contrasts well with the pure white of the rest of the flower. You will find the stigmas are present in the coloured varieties as well, but are not so conspicuous. The specimens are perfect and very pretty.

Seedling Violet (*A. Godward*).—It has no special merit.

Flowers for Borders (*A. A.*).—On your narrow north border Violets, Snowdrops, Crocuses, and Forget-me-nots would do admirably in spring, and Daisies and low herbaceous plants in summer. For fruit, Black Currants, Red Currants, and Gooseberries would succeed well against the wall, and so would Morello Cherries kept low. For the ribbon border, with a better exposure, we would so far change the arrangement—Cineraria maritima at the back, then low scarlet Geranium, and yellow Pyrethrum, blue Lobelia edged with Cerastium tomentosum. The cuttings now rooted of Alternanthera would make nice stubby plants in a cool greenhouse in summer, and so they would if planted out in a sunny spot at the end of May. Purple Verbena, or a dwarf Scarlet Geranium, would come in well behind the Mesembryanthemum.

Figure-of-Four Trap (*W. W.*).—This is the cheapest and most effective trap we know, and, from what we have observed, the animals killed by it seem to suffer little pain. We give an engraving of it; essentially it consists of two tiles, one at the bottom, one at the top, the latter supported by a

triangle such as is represented in the accompanying figure. The upright piece stands for itself, the long base of the triangle carying the bait at one end (best clear of the bottom for delicate manœuvres) notched to fit to it, and notched in front to receive the short front piece, or hypothenuse, of the triangle bearing the crushing tile. The mouse nibbles at the bait, disturbs the hold of the front piece on the base, and down comes the whole. Another good trap is a flower-pot inverted in the soil over a saucer, as represented in the accompanying figure, and slightly covered with leaves. Of course Peas or some other bait should be placed in the saucers.

Flower-beds (*Kittie*).—What we chiefly admire in your flower garden is the simplicity of the design and the great simplicity in the proposed planting. Thus, you have a rather long octagon in the centre, with the sides curved-in to leave eight points, eight circles round, the curve of the circle suiting the curve in the octagon, and then eight clumps round, which would be nearly semicircles, except that a curved line passes from the centre of the diameter to join the circumference, the sharp angle of each of these facing the sharp point of the octagon, a supposed line passing between these two points having a circle on each side. Then the proposed planting is equally simple. Several bands for the large centre, the eight circles to be filled with Calceolarias, edged with purple Verbena; and of the eight outside beds, four to be filled with scarlet Geraniums edged with Flower of the Day, and four with pink Geraniums, edged with Perilla pegged down. Here simplicity is so far departed from, and the edging of Perilla would come in between two beds with an edging of purple Verbena. If we had all the circles alike we would make all the outsides alike; but here, again, we fear that simplicity would be gained at the cost of sameness. We would rather take the key-note from the outside beds, and if we had not four distinct pairs we would at least have four beds of a sort in each ring. Without some such breaking-up, and if the different rounds of beds were planted alike, we do not see why as good an effect would not be produced by having one large bed, and the colours arranged in massive bands. But now to a few particulars. As the place is so windy, we would not use Coleus for the centre bed, but Iresine Lindeni, and one point in its favour is that it will stand a month or six weeks longer than the Coleus in ordinary autumns. The arrangement then would be, beginning at the centre, Centaurea, Iresine, Polemonium variegatum. Another arrangement is very good, only we would alter it so as to stand thus:—Centaurea, Iresine, Mrs. Pollock, blue Lobelia, with just a string of Cerastium tomentosum. Then, as to the circles, we would plant each alternate one, as you propose, with strong yellow Calceolaria, and edge with Purple King Verbena. The other alternate four might be Purple King and a low yellow Calceolaria, as Aurea floribunda. We would, however, prefer Imperial Dwarf Ageratum and Aurea floribunda Calceolaria. Then, for the outside beds, we would have four bright scarlet Geranium beds edged with a white variegated kind, as Bijou, and four alternate beds of Christine or Amy Hogg, edged with Flower of the Day. As you have Mangles' Variegated you might use it, but it requires a broader band than you can give it in these beds to make it effective.

Hotbed for Cuttings (*Idem*).—We prefer a bed of dung and leaves to dung alone, it is so much more lasting; and if a coating of leaves is kept at the surface, there is little danger of noxious steam.

Planting Sea-kale (*Nemo*).—The best time to plant Sea-kale is at the end of March or beginning of April. The ground should be trenched 2 feet deep, or deeper if you have good soil, adding manure, leaf soil, and decayed vegetable matter liberally, mixing them well with the soil, and if the ground is heavy add a quantity of sand. Sea-kale likes rich, light, sandy

well-drained soil. Your one-year-old plants will be good for planting. If you intend to force on the ground, put in three plants in the form of a triangle, 8 inches from point to point, and 2 feet between each triangle of plants. The rows should be 15 inches from the sides of the bed, and this will admit of your putting in two rows 18 inches apart along your 4-feet bed. We should have preferred 2 feet as the distance between the rows. We presume the alleys are 2 feet apart. In planting, if the ground is heavy and wet, surround the root-stem up to the crown with sand. If the soil is dry water it, and in moist weather in May sprinkle the bed with salt, at the rate of 1 lb. per square yard. Water freely with liquid manure throughout the summer, stirring the ground frequently, and being careful not to injure the leaves. It will be fit to force next winter. If you intend taking up for forcing, plant in rows 15 inches apart, and the plants a foot apart in the rows.

ABUTILON VEXILLARIUM MARMORATUM GRAFTING (*A. B., Ireland*).—We have no doubt this plant will succeed better grafted on a hardier kind, but we know of none hardier than the species A. vexillarium, and on that we should graft now, placing the plant in gentle heat, and keeping it close until the union is complete. Whip-grafting will answer well.

PLANTS FOR WINDOW BOXES UNDER VERANDAH (*Mary*).—Being beneath the shade of the verandah we fear the plants in the boxes would not succeed very well. We should have for edging Alyssum variegatum and Lobelia speciosa, with a plant or two of Mignonette at the corners, and at the centre of the sides of the boxes, filling in the centre with a low-growing Geranium at each end, as Blackband, then Imperial Dwarf Ageratum, and Lady Cullum Tricolor Pelargonium in the centre, making both sides of the box alike. If you wish for anything more sweet, then have an edging of Mignonette, and fill the centre with Ten-week Stocks. The best time to plant Czar Violets is from now up to May, but we prefer moist weather at the end of April. Select good runners or offsets. For the arches in a warm situation we should have the following Roses—viz., Climbing Devoniensis, Gloire de Dijon, Tea-scented; Alfred Colomb, Glory of Waltham, Eugene Appert, Camille Bernardin, Adolphe Brongniart, and La France, Hybrid Perpetuals; Sir Joseph Paxton, Bourbon.

BOILER (*A Foreigner*).—We have no doubt that a No. 5 boiler of the firm you name would suit your purpose, but for five such large houses, 17 to 22 feet wide and 160 feet long, we should strongly advise two such boilers, set side by side, to be used separately or together, chiefly in the case of frost. The outlay would be a cheap insurance. We join you in having our doubts of large cast-metal boilers. For saddle-backs we would have the best welded iron, and for such houses we should like two boilers side by side, each 6 feet long, and at least 3½ feet in height.

GREENHOUSE VINERY ARRANGEMENTS (*J. N. Lauson*).—We presume that by the proposed direction of the flue, you mean to divide your house of 21 feet in length into two portions, so that the division next the furnace should always be warmer than the other. This you will secure by the proposed mode of taking the flue along the side, front, and up the other side of the first division, then returning it close to the division wall along the front, and round to the chimney in the second division. The only objection is, that if the flue is above ground, you will have to sink the flue twice at that division for the doorway, and once more at the entrance door in the second compartment, and these three sinkings will interfere with the free draught of the flue, unless your chimney is 20 feet in height. You would secure much the same object, but with less command of heat, by omitting the cross flues at the partition, and taking the flue right along the front of both houses; then you would have only one sinking beneath the pathway at the entrance doorway, and even that might be avoided by turning your flue on the south side of the doorway, and taking it to the chimney near the partition. We allude to this because, in general, the more dips there are in a flue the higher you must make your chimney; merely for a greenhouse vinery for keeping frost out, and in a house 21 feet by 12, we would avoid all such trouble by having a sunk flue—the top of the flue forming part of the floor or pathway. We presume, however, you mean a flue above ground. With regard to forming the flue, for such a place a small flue will be ample. Make a firm base, say with a layer of bricks, 14 inches wide, and plaster the surface with lime putty. Place two bricks on edge on each side, so as that the outsides will measure 12 inches across, leaving about 7½ inches inside for the flue. This will be ample for such a place for general purposes. These bricks should be well burned, be soaked previous to use, be set as straight as possible on the inside, and be united at the joints with fine lime putty, making the joints as small as possible. If you want a forcing heat, three bricks should be used on each side instead of two; for covering, 1-foot tiles about an inch thick will do. It is safer, however, to have some thin flat house tiles to lay across first, and plaster them all over, and on that place the top tiles. We would rather not do anything at all in the way of plastering the inside of the flue. You may use a little plaster for the sides outside, or a thickish limewash, which you can darken with a little lampblack. The holes you allude to for cleaning the flue should be at the different turns. You can easily have plates set in a frame from 6 to 9 inches square; build these in the inside of the flue, so that the plate shall run with the inside of the flue. You can fill-up outside with a tile and plaster, and remove these and open the plate when you wish to clean. This is a great improvement upon being forced to unsettle the flue. For such a house, a furnace 2 feet in length, 18 inches wide, and 18 inches deep, would be ample for coal fuel. If you depend on breeze or cinders, the width and length should be respectively 4 inches more, and 6 or 8 inches more, and the flue should be 3 or 4 inches deeper if you depend chiefly on wood. In either case as respects fuel, your furnace bars should be from 24 to 30 inches beneath the bottom of your flue; the greater the rise the greater the draught, and that is easily regulated by a close-fitting ash-pit door.

VINES FOR GREENHOUSE VINERY (*Idem*).—For such a house five Vines would be ample, and we would recommend for a rather cool house three Black Hamburghs, one Royal Muscadine, and one Buckland Sweetwater. We would place one Hamburgh and one Muscadine in the warmest compartment. For Muscadine you might substitute White Frontignan, and Black Muscat of Alexandria (Muscat Hamburgh) for one Black Hamburgh if you are fond of the Muscat flavour. This is a good time to plant. The border outside should not be less than 2 feet deep over some 6 or 8 inches of open rubble. Nothing is better than sweet fibrous loam, with about a tenth part of lime rubbish and some six bushels of crushed boiled bones, reserving other manure chiefly for surface-dressings. For these and other matters consult the "Vine Manual," which you can have from our office by post for 2s. 8d.

INSECTS (*J. R. G.*).—The insects sent are the Lepisma saccharina, commonly called Silver Ladies, found in old cupboards, where they eat crumbs, scraps of groceries, paste of wall paper, &c. The silvery scales are used by microscopists as test objects.—I. O. W.

NAMES OF PLANTS (*B. Godbold*).—To name "the box full of Ferns, &c.," would occupy the major part of a day. We cannot spare the time, and we have a notice printed that we request no one to send more than six specimens at a time. (*Hildenborough*).—The Cornelian Cherry, Cornus mas. (*C. G., Carlton*).—1, Adiantum hispidulum; 2, Pellæa adiantifolia; 3, Doodia candata; 4, Platyloma rotundifolia; 5, Adiantum diaphanum; 6, Pteris longifolia. (*R. Johnson*).—Senecio Petasites. (*M. A. M.*).—1, Convolvulus Cneorum; 2, Correa; 3, Saxifraga crassifolia; 4, Leptospermum virgatum; 5, Erica cerinthoides coronata; 6, Tasmania aromatica; only female flowers were borne on the shoot sent. (*W. H. M.*).—Apparently Rhododendron Windsori, as figured in *Bot. Mag., t.* 5008. (*M. D., Braintree*).—An Epacris; name next week.

POULTRY, BEE, AND PIGEON CHRONICLE.

FOWLS FOR PROFIT, AND AS A MEANS OF SUBSISTENCE.—No. 2.

SELECTION OF BREED WHEN CONFINED.—This plan is in itself a disadvantage. First, the fowls will require more food, and although as a set-off we obtain a greater quantity of manure, still this does not pay for the extra outlay in food. Secondly, the Hamburgh breed, which, as I have before stated, has no equal in its capabilities of laying, will not tolerate confinement. In this contingency I would advise the substitution of the Houdan fowl for the Black Hamburgh, as being the next best egg-producer. This breed, like the Black Hamburgh, never shows a disposition to sit. I may remark, in passing, that as it is imperative to have a constant and undiminished supply of eggs, those who intend to derive a subsistence from their poultry must be careful to place in their egg-producing department hens which are non-sitters.

The Brahma Pootra must still retain their place for supplying us with chickens; they will thrive in confinement almost as well as if at liberty. It must be borne in mind that poultry kept in confinement will require double the amount of attention of those which have a run.

INCUBATION.—Hens will show a disposition to incubate at almost any time if attention is paid to warmth and to their food, which should be slightly stimulating in the winter months. The Brahma chickens can be reared without difficulty in midwinter, and without exception each hen as she becomes broody should be allowed to sit. In cold weather she should not have more than nine eggs given to her, and in the spring and summer she may have from twelve to fifteen. The nest must be made of straw, never hay, and if the floor of the sitting-house is made of earth and small stones beaten well together, the nest may be made on the floor; but if it is flagged or bricked, a fresh-cut grass sod, the size of the sitting-box, must be placed on the floor to give a dampness to the eggs.

The henwife must attend to the sitting fowls at regular periods each day to give them food and water. They may all feed together, and may be allowed about a quarter of an hour's absence from the eggs; this time may be exceeded in the summer by a few minutes, but on no account in the winter months. If the weather is dry it is an excellent plan, and sometimes almost a necessary precaution, to take each hen, holding her gently by the wings, and with the other hand wet her breast feathers with cold water immediately before she returns to the eggs. This is better than wetting the eggs themselves with a small brush as some writers have recommended; in the latter case the eggs receive a cold moisture, whereas if the feathers of the hen are wet, the heat of her body imparts a gentle and most beneficial moisture to the egg, which is of the greatest benefit to the imprisoned chick. The henwife must remain in the sitting-house until the hen is safely on her own eggs again, as sometimes a quarrel will arise, and we have known two hens determined to share the same nest, to the great danger of the eggs.

The time of incubation is twenty-one days, and if at the end of ten-days sitting the eggs are examined by holding them before a lamp or candle in a room from which the light is excluded, those which are unfertile will be found to be quite transparent, whilst the fertile ones will be opaque, and the air-bag distinctly marked at the round end of the egg. This is an economical proceeding when two or more hens are set on the same day, as, should there be any unfertile eggs, it is sometimes possible to divide the fertile eggs between the two hens, and set the third hen again on a fresh sitting. We never disturb our hens when hatching-out, but food must be placed before them when this process is accomplished. Care must be taken to keep the chickens warm and dry for a few days, but after that the Brahma chicks will thrive with ordinary attention.

The Hamburgh chickens will require to be attended to a little longer, but if the weather is fine they will soon be independent also.

Nothing is so essential to the well-being of chickens as warmth, cleanliness, and freedom from damp. Each sitting-house must be provided with a dustheap, composed of fine ashes, as the hens are often troubled with vermin, and their feathers should be dusted with sulphur, both as a preventive and a cure. The neglect of this simple precaution often causes the hen great annoyance, neither is it to be expected that she can sit her eggs well when restless and disturbed.

Should a hen not show a disposition to sit when required to do so, she must be placed in her nest with a few eggs, and kept very warm; her food must consist of buckwheat, hempseed, a little raw chopped liver, and Indian corn. She must also be kept dark, and she will probably soon manifest a desire to sit.—VINCENT FRASER.

POULTRY EXPERIENCE PURCHASED.—No. 4.

"DON'T put them in the pens," I said, "put them back into the hampers, and let my people run back home with them; I won't allow them to disgrace your show." "Nay, Madam," was the reply, "there is nothing amiss with your Brahma chickens, except that they are rather dirty." "Pray allow them to remain," said one of the managers of the poultry show held annually in our little country town," and remain they did, with what success I will tell you; but "your special correspondent" walked her short distance homeward certainly a sadder if not a wiser woman. I remembered eight months back how cheerfully I had parted with a piece of gold large enough to have satisfied the longing of my "bairns" for a donkey, yet I only received in exchange a polite acknowledgment and thirteen eggs. How skilfully they were packed for their long journey, to be sure; tissue paper, hay, soft wool, and softer moss, were all enlisted to insure their safety. They were at once entrusted to the motherly attentions of our most intelligent hen, and I need not tell how horrified I was to find four broken the next morning. Then I had to wait that interminable three weeks before I could count four, five—yes, six little grey chicks that must be fed on eggs, rice pudding, and groats, and carefully tended till they reached cockerel's and pullet's estate; also to exterminate that objectionable crooked comb and vulture hock, that undesirable brown or yellow tinge, and various other ills that Brahma flesh is heir to. When you have waded through all this "poultry experience," to discover at a glance that lots of people can get better birds than yours, is very hard.

At noon we went to the show, I to study "points," and the "bairns" to see how mamma's big "Charley" behaved himself in company and a cage (I think I have previously mentioned the sad fact of the head of the family being a heretic and an infidel where Dark Brahmas were concerned).

"Oh, wad some power the giftie gie us."

I quoted to a friend, "to know how those wonderful men breed such wonderful birds," as brimming over with admiration I stood among the prize pens with a keen sense of enjoyment none but a true lover of the species could either pardon or comprehend. Somebody says, "Show me your amusements, and I will tell you what you are." For my part I confess to perfect happiness among my feathered pets, and I am sure the affection is mutual; let a stranger walk through the yard, they run away in all directions. If I go among them they keep so close, I have to push them on one side with my foot. "Would you be surprised to hear they have highly commended your pens? and had there been prizes, yours would certainly have been first." I grasped my friend's hand with a fervour that cost me 4*s.* 6*d.* on the spot, for my glove became a total wreck. If I could only have invited those nice men, judge, committee, and stewards to dinner, and let them toast my pets in Veuve Clicquot and '34 port! I promised myself, however, that I would relieve my feelings by telling "our Journal" all about it, for I felt certain that you would be pleased to hear I had been at last highly commended, and you will no doubt share my joy when I take the Crystal Palace cup.

I have always closed my letters with a moral, and now do so from habit, "Blessed are they who expect nothing at a poultry show, but more blessed are they that get what they expect."—J. K. L.

DOVER AND CINQUE PORTS POULTRY AND PIGEON SHOW.—We are informed that his Royal Highness Prince Arthur, Earl Granville, Lord Warden, and the County and Borough Members, have become patrons. The guarantee fund list is now closed, and subscriptions are solicited towards the funds.

A VISIT TO MR. R. FULTON'S PIGEONS, NEW CROSS, DEPTFORD.

MR. FULTON, whose acquaintance I made some years since at Glasgow, and renewed it at various shows, is well known as one of the most successful exhibitors and best Pigeon-fanciers in Britain. His practical knowledge is very great, no man living knows a Pigeon better than Robert Fulton. I knew also that he had a large collection of high-class Pigeons. All these were sufficient reasons to make me accept his invitation to inspect his birds. But there was another and further reason. Those upper-class fanciers whom I know, and who know him, are accustomed to say, "Fulton's an honest man, and one whose word we can rely upon; if he sells you a prize bird, and it wo'n't breed, he tells you so. Then he not only asks a good price for a good bird, which, of course, he is quite right in doing, but he will give a good price for a good bird." These latter reasons were those which specially induced me to go to Deptford.

Deptford of ship-building fame, thought I. Why, John Evelyn, the author of "Sylva, or a Discourse on Forest Trees," lived there at his seat, Sayes Court, which he, unfortunately for himself, let to Peter the Great, when he came to Deptford to learn ship-building. Of Sayes Court, says chatty Mr. Pepys, "We walked in Mr. Evelyn's garden, and a lovely noble ground he hath indeed. And among other rarities, a hive of bees, so as being hived in glass, you may see the bees making their honey and combs mighty pleasantly." Unfortunately, the Czar had no taste for gardening or neatness, and trampled on good Mr. Evelyn's flowers, destroyed his choice shrubs, and used to amuse himself (the savage!) by being wheeled in a wheelbarrow through a neat-clipped hedge which Mr. Evelyn had raised with much care and cost. No wonder Mr. Evelyn's old servant said, "The Russians were right nasty."

I have talked of trees, flowers, and gardens, so giving the readers of the beginning of "our Journal" a turn; and of bees, giving the readers of the tail end a turn; of Pigeons presently. Perhaps these good gardening and bee people will read this, and get improved—that is, learn to love and keep fancy Pigeons.

But Mr. Fulton has recently left Deptford, and lives at New Cross. Deptford I knew well enough on the map—the Deptford of Dibden's song, "Wapping Old Stairs," in which he tells us—

"Of Susan from Deptford, and likewise of Sal,"

and of the faithful Molly who to her sailor husband (of the future) says—

"Still your trousers I'll wash, and your grog I will make."

Deptford I knew, then, very well; it lies on the Thames and joins Greenwich. But "Where's New Cross?" said I to a hardened Londoner, who actually walks by St. Paul's and the Monument, and does not look at either, and knows all the short cuts of the very city itself. "Where's New Cross?" said I. "New Cross is one of the first stations from London Bridge, or, to save your legs, take a ticket from Cannon Street, cost you a few pence, trains every ten minutes. There, go, and meet me at Lake's, Gracechurch Street, at lunch at one o'clock sharp, not a minute after. There—good morning." My informant having hurriedly jerked out these directions, was in a few moments one of the crowd of men moving eastward from the Mansion House Station. How quick these Londoners are! I wonder they can find time to breathe. Well, I prefer country ways.

Sure enough, I soon get to New Cross; it is just in the parish of Deptford, and just, and only just, in Kent. New enough it is; roads—not streets yet—roads worn this horrid wet winter into ruts as deep as in Wiltshire lanes. Planks are along the future footways, on which I trip carefully to avoid falling into the mud beside me, passing by masons chipping at the stone balustrades of new houses. New Cross! I see it all exactly—a new creation to meet the wants of the middle-class London workers, who spend the day in the city, but prefer sleeping in better air. Here are homes by hundreds of city clerks who have married on small means, and have set up here a neat, new, humble home. There's the baby at the window, soon to be perambulated by the little maid. There's the pretty young wife and mother, who will look out of the window

early on Saturday "for somebody," who has a holiday then. So I do not wonder, considering all things, that the houses greatly resemble each other in the many new streets of New Cross. "Can you tell me where Union Crescent, Brockley Road, is?" said I to one of the many masons, who, pausing in his chipping, answered, "Brockley Road I know, but I never heard of Union Terrace. Brockley Road—keep on past two turnings, then first to the right, and third to the left down the valley," &c. "Why, it must be miles," gasped I. "Oh! no; only ten minutes' walk." Well, I do reach Brockley Road, which seemed a comparatively old part of New Cross, for the road is a street clean and firm, a pavement to walk on, gas lamps, tidy shops, and the same, only six months older, neat houses, with neat blinds, with baby at the windows, and perambulators in the little gardens in front. "Where's Union Terrace?" asked I of a policeman. N.B.—Always ask a policeman if you don't see a postman. "Don't know, sir," said the gentleman in blue; "but, then, I'm almost a stranger here; but there's Paul's Terrace." I then asked a little maid washing the steps at a house in Paul's Terrace the same question. "Don't know, sir." Then I asked a jobbing gardener. "Don't exactly know, sir, but I think it's not far off." N.B.—He was making a new garden in front of a house born an hour before, so very new it seemed. Oh! how new New Cross is! It is spick-and-span new; it is bran new. I daresay it was all green hill the year before last. Names are not on the houses yet, save at Paul's Terrace. I was now getting hopeless, and meditated returning to London, and writing an article entitled "A Fruitless Journey to New Cross," when close by Paul's Terrace, close to that stupid servant girl's pail and mop, hard by that stupid gardener, and that foolish-faced policeman looking on, I peeped through a gate and saw the legs of a White Pouter in a pigeonry very new, indeed, at the bottom of a new garden, behind a new house. The house had no name on it (improve this, R. Fulton), no number on it, no "Union Terrace" on the end of the row. Well, I mounted the steps of that nameless, numberless house—a nice, clean, pretty house, and nice fresh air to be enjoyed on the top of the steps. If I were but a single curate I should wish to lodge there. Robert Fulton did live there, said a tidy little maid. She was right, for in the room are pictures of Pigeons, too accurate to be in any but the house of a good fancier. All right at last, thought I, and here came in Robert Fulton.

To the Pigeons, for time presses. First, I am shown, in passing, a zinc hopper of Mr. Fulton's invention, the neatest and best made for supplying the birds with food, and keeping it from all impurity, that I ever saw. With the hopper was also a specimen fountain, made of the same material, and of like excellence. Then I pass a round pond, where fancy Ducks are to be when Mr. Fulton gets settled. Straight before me, at the bottom of the garden, in the bright sunlight (for, strange to say, it was a fine day—a treat, indeed, after two months' rain), stand the long row of Pigeon pens. They are built—sides, back, and ends, as well as the roof—of corrugated galvanised iron. A good plan this, for rats cannot get through iron, and in case of removal they could be easily transferred to another place. Iron also puzzles thieves. The row of pens are divided into six compartments, each compartment being 11 feet square. A large window, heavily barred for fear, doubtless, of improper Pigeon-fanciers, is in the front of each pen. The window shutter removed, out came the birds into their place of exercise, this being exactly the same size as the pen within. It is well supplied with resting-boards and perches, on which the Pigeons can enjoy themselves, and on the floor in each a bath.

Entering, I come into the first division to the left containing the Pouters, some of which have done wonders at various shows. Mr. Fulton is at this time strong in all the varieties except Black Pieds. Some are wonders for shape and length. I measured a Blue Pied cock; 20½ inches good in length, and 7¼ in limb. Such lengths are often talked about, and people imagine they possess such birds, but they usually fail when the 2-feet rule comes out, and two persons measure the bird impartially. I measured Mealy birds and found them the same. Before me stood White Pouters of extreme elegance of form, and Yellow birds of wonderful soundness of colour. Indeed, such a number of such goodness was a rare treat to see. Pen No. 2 contained the choicest Carriers, some of them remarkable in head and contour. There were Blacks, Duns, and Blues. Pen No. 3 contained more Carriers. Nos. 4 and 5 were full of various classes. Mr. Fulton is very strong in Jacobins, some having their hoods flat to their heads. He had White Jacobins with pearl eyes, Barbs of various colours, Turbits, Owls, Fans, &c. Lastly came pen No. 6, full of Short-faced Tumblers; Almonds of various shades, the dark, the rich, the lighter. Some wonderful in colour, others in head and beak. Two (hen birds both, unfortunately) were Golden Duns. Then there were Short-faced Balds and Beards. This pen was to me particularly pleasing. The day had become warm as well as sunny, and as these dainty-shaped, sprightly little birds flew to the various alighting-boards in the outer aviary, and as their many-coloured plumage and bright hackles glittered in the sun, they formed a charming sight to one who has an eye for a high-class Tumbler. Their flights and tails were, too, remarkably clean; and as no feeders or other coarse birds were with them, there was nothing to take off their beauty.

Such is Mr. Fulton's pigeonry and its inhabitants, and may both he and they prosper in their new abode. Truly he has high-class birds. For my own part I could have spent many hours in those pens. The buildings themselves are well arranged. In each pen are the aforenamed hoppers and fountains. Mr. Fulton is giving up those rickety Birmingham triangles, neither good for foot nor wings, and is adopting Mr. Noyé's roosts, as described and pictured in vol. xviii., page 399, of this Journal (June 2nd, 1870), with this improvement, instead of round perches, flat pieces of deal 2 inches or so wide. I have done the same, and find the birds prefer them. I will also add that the slanting board should be a foot wide, to secure the dung from dropping below. Mr. Fulton has abundance of sawdust on the floors, which certainly gives a clean appearance. In the outer aviaries are the baths, flat zinc pans, 2 or 3 inches deep, and with a large margin; indeed they look like a flat pan set in a larger pan, the latter catching all the splash, and saving the floor from damp, and the birds' wings and tails from becoming draggled and dirty.

A peep at some Pigeon portraits in-doors, and a talk about Glasgow fanciers, and then a hasty good-bye, for my time was up.

I was pleased with all I saw at New Cross, and I am glad that the Pigeon-fancy has so advanced as to make it worth while for Mr. Fulton to get together a grand lot of high-class Pigeons of all the varieties; so that the better fanciers know where to put their hands upon such birds as from time to time they may require.—Wiltshire Rector.

BLACK HAMBURGHS.

I have often wondered why, except at some few of our leading shows, this beautiful variety is not allotted a separate class, but has to be shown either in the Any other variety or the Selling class. I should like to ask the committees of shows the question, and receive a answer, why the variety is thus treated.

They are one of the handsomest and best varieties of fowls we have. They are lovely in plumage; in their egg-producing qualities they equal any other breed; they are small eaters; they do not figure badly on the table; and if they are assigned a separate class at a show they seldom fail to appear in sufficient numbers to justify the pecuniary outlay. If any individual should say that they are not shown in sufficient numbers to warrant committees in giving them a separate class, I would just refer him to Wolverhampton, where a £3 3s. first prize brought out the very respectable entry of nineteen pens; whereas in neither of the other classes of Hamburghs did they surpass, and only in one instance—viz., Golden-pencilled, did they equal this number. Some may say that the reason of this lies in the fact that instead of a £3 3s. first prize there was only £2 for any of the other varieties; but still my opinion holds good, and shows that if they receive from committees that encouragement to which they are justly entitled, they will not fail to make satisfactory returns.

I cannot understand why some classes should be allotted £3, £2, and £1, and others only £2, £1 and 10s. Should not all be equally treated? as in most instances the entry fees are the same for one as the other.—Thomas Bush.

TRIMMING BIRDS FOR EXHIBITION.

Right glad was I to see the remarks you made in last week's Journal on trimming, and I trust that the committee of every future show will adopt the clause you suggest.

I have been very fond of poultry from my boyhood (the almond tree has begun to blossom now), and have somehow drifted into the "Fancy" a little of late, and have also indulged in the luxury of exhibiting a few pens with a fair amount of success. But really when I read so much about paint, pins, needles, scissors, glue, &c., in connection with shows, it makes me feel

there is something wrong going on, and the question arises, Ought I to have anything to do with it? I know more than one besides myself who has similar feelings on the subject, and will cease to exhibit altogether if such dishonest jobbery continues. Would it be possible to form a sort of confederation of exhibitors pledging themselves not to support any show unless a clause similar to that which you suggest be inserted in the entry form? At any rate it is clear some stringent measures must be taken, or honest exhibitors will give up in disgust, however much they may regret doing so.—CHELTENHAM.

COLCHESTER POULTRY SHOW.

THIS Show was held on the 21st and 22nd inst. The poultry and Rabbits were exhibited in the Corn Exchange, the Pigeons and Cage birds in the Public Hall. Both buildings are light, airy, and well adapted for showing off birds to the best advantage. There were nine silver cups distributed over the different classes, and the money prizes were equally liberal, so that the Committee deserved a numerous entry, and we were pleased to find on entering the Exhibition they had not been disappointed, as there were 536 entries. The whole of the arrangements were good and admirably carried out, the birds well cared for, but we do object, and that very strongly, to the pens being strewed with sawdust. It may keep the birds drier and cleaner than sand, but they are sure to eat some, and when the soft food is given it gets mixed with the sawdust, which is then swallowed. When it gets into the crop the wood swells, causes indigestion, and often lays the foundation of many other diseases. Sawdust is very injurious, whilst sand, or the small stones found amongst it, are absolutely necessary for the birds' health, and these small grinders are even more than ever required when birds are confined in a pen for several days with nothing to assist their digestive organs. We therefore consider it necessary that the bottoms of the pens should always be strewed with sand or fine gravel.

The Coloured *Dorkings* were good. The cup pen looked sadly out of condition. We hardly liked the second-prize pen so well as a highly commended pen. Whites mustered very well, and most of them were above the average in quality. The cup for *Cochins* went to a splendid pair of Buffs; Partridge were first and third in the Any Variety class; Whites were second. The Dark *Brahmas* were very numerous, and most of the birds good; many, however, showing the evil effects of continuous exhibition. The Lights were a very inferior lot. *Spanish* numbered thirteen pens, and the quality throughout was better than we have seen for some time, the cup being won with a capital pair, of which the cock was very long in the lobe. This pen was closely pressed by a pair of old birds, which stood second. *Game* were very good; Blacks and Browns competed together, an uncommonly nice pair of Brown Reds winning, a Black Red being second. The Duckwings won the cup; only the third prize was awarded in the Variety class, some of the birds being gouty. *Hamburghs* were numerous and above the usual average for a show in the South. The awards for Black and Brown Reds we did not like; we thought the second-prize pair far more after the stamp and style of a Game bird than their more fortunate rivals. The cup went to a very pretty Duckwing cock, but the hen which was with him was very inferior, and he is deserving of a more handsome mate. In the Bantam variety class some beautifully Laced birds were first. *French* were good, and the *Polands* very few. Malays were first in the Any other variety class, Sultans second, and a good pair of Cuckoo Dorkings third.

Rouen *Ducks* were a good entry, but of the Aylesbury there were only two entries, and one of these was absent. How is it we find at almost every show this beautiful and valuable breed gradually getting less in size and fewer in numbers? In the Selling classes the entries were numerous, consisting of the usual miscellaneous mixture of good, bad, and indifferent which we always find in this class.

For *Pigeons* a cup was given to the winner of the greatest number of prizes; but why such cups are ever given we are at a loss to conceive, unless it is to induce some people to borrow birds of others. Possibly it may induce one or two exhibitors to send a few extra entries, but they hunt up all their friends for the loan of birds, and thus prevent many others from sending. We know of one or two instances on this occasion. Amongst the Pigeons several pens were disqualified. We should like to see a rule made by the committee of every show, that where any exhibitor was found to have either trimmed or tampered with birds he should be prevented from taking any prizes. If this had been the case at Colchester a winner of one of the chief prizes would never have had it. Carriers were good. Mr. Horner had a pen in each class disqualified. Of the ten pens of Pouter cocks entered eight were noticed by the Judges, showing the general superiority of the birds. Tumblers were very neat and pretty, Mr. Horner again disqualified for trimming. Jacobins proved a good class, also the Turbits. Barbs, with the exception of the winning pens, were hardly up to the average. In Nuns the first and second prizes were withheld, the Judge stating the majority of the birds were grossly trimmed. The working Antwerps were, as usual, very numerous, and most of the birds of superior quality.

The *Rabbits* were not very large in numbers, but some of the specimens were of unusual length of ear.

The attendance on the day we were present was very large, many of the neighbouring gentry being present and purchasing very freely.

DORKINGS (Coloured).—1 and Cup, L. Pattoo, Hillmore, Tanaton. 2, O. E. Cresswell, Early Wood, Bagshot. 3, L. Wren, Lowestoft. *hc*, G. W. Greenhill; F. Parfett, Great Baddow; W. S. Marah, Deal.

DORKINGS (White).—1, O. E. Cresswell. 2 and 3, Rev. F. Tearle, Gazeley Vicarage, Newmarket.

COCHINS (Cinnamon and Buff).—1 and Cup, Lady Gwydyr, Stoke Park, Ipswich. 2, G. Stickings. 3, A. A. Seahora, Hadleigh.

COCHINS (Any other variety).—1 and 3, Horace Lingwood, Crecting, Needham Market (Partridge). 2, R. S. S. Woodgate, Pembury, Tunbridge Wells (White).

BRAHMAS (Dark).—1 and Cup, T. F. Ansdell, Cowley Mount, St. Helen's. 2, Horace Lingwood. 3, Rev. J. G. B. Knight. *hc*, Dr. Holmes, Whitecotes, Chesterfield; B. Parrott, Heabury, Bristol; W. J. E. Shalford, Maidstone (2); H. Dowsett, Pleshey, Chelmsford: Lady Gwydyr. *c*, J. Drake, Ongar.

BRAHMAS (Light).—1 and 3, H. Dowsett. 2, P. Hance. *hc*, Mrs. T. Turner, Avon, Ringwood.

SPANISH.—1 and Cup, Nichols Bros., Camberwell. 2, Mrs. Tonkin, Bristol. 3, Hon. Miss D. Pennant, Penrhyn Castle, Bangor. *hc*, W. E. J. Shalford; Hon. Miss D. Pennant (3), A. W. Woodhouse.

GAME (Black-breasted and other Reds).—1, W. Rayner, Ipswich. 2, S. Matthews, Stowmarket (2). 3, E. Winwood. *hc*, J. Fletcher, Stoneclough; W. Foster, Deal; F. Harding, Chingford; B. Boyes, Beverley; S. Matthews.

GAME (Duckwing and other Greys and Blues).—1 and Cup, S. Matthews. 2, W. Foster. 3, E. Winwood.

GAME (Any other variety).—1 and 2, Withheld. 3, J. H. Salter, Tolleshunt D'Arcy (Pile).

HAMBURGHS (Gold and Silver-spangled).—1 and Cup, Ashton & Booth. 2, L. Wren, Lowestoft. 3, W. Groom, Ipswich. *hc*, W. K. Tickner, Ipswich. *c*, T. Love, Kingsthorpe, Northampton; R. & H. Ashton, Mottram.

HAMBURGHS (Gold and Silver-pencilled).—1, J. Webster, Helbrook, Lancashire. 2, R. E. Parker. 3, W. K. Tickner. *c*, C. Blodworth, Cheltenham.

GAME BANTAMS (Black and other Reds).—1, W. B. Jeffries, Ipswich. 2 and 3 W. Adams. *hc*, W. S. Marsh; G. F. Ward, Wrexbury.

GAME BANTAMS (Any other variety).—1, Cup, and 3, Rev. F. Cooper, Ampney (Duckwing). 2, G. Smith, Staveley (Pile). *hc*, W. Adams (Duckwing); F. Fielder (Duckwing). *c*, E. Branford (Duckwing).

BANTAMS (Any variety except Game).—1 and *c*, M. Leno, Markyate Street, Dunstable. 2, Rev. F. Tearle, Gazeley Vicarage, Newmarket. 3, R. & H. Ashton. *hc*, F. E. Thirtle, Lowestoft; J. Bloodworth, Cheltenham.

FRENCH.—1, C. H. Smith, Radcliffe-on-Trent. 2 and 3, W. Dring, Faversham. *hc*, W. Burrows, Diss; G. Chilton, Littleton, Guildford; Mrs. J. Cross, Appleby Vicarage, Brigg. *c*, W. Tippler.

POLANDS.—1, 2, and 3, W. K. Patrick, West Winch, Lynn.

ANY OTHER VARIETY.—1, Rev. G. A. Brooke, Shrawardine (Malays). 2, W. H. Tomlinson, Newark-on-Trent (Sultans). 3, Rev. F. Tearle (Cuckoo Dorkings). *hc*, R. S. S. Woodgate (Silkies). *c*, Mrs. F. Parlett (Cuckoo Dorking); J. P. Fawcett (Black Hamburghs); Lady Gwydyr (Silkies).

DUCKS (Rouen).—1, F. Parlett. 2, H. Dowsett. 3, J. Drake. *hc*, R. W. Richardson, Reverley. *c*, F. Parlett; H. Dowsett.

DUCKS (Aylesbury).—1, G. W. Greenhill, Ashford.

DUCKS (Any other variety).—1 and 3, M. Leno (Mandarin and Carolina). 2, H. B. Smith. *c*, R. S. S. Woodgate (Labrador).

SELLING CLASS.—*Cock.*—1, W. N. Cater, Colchester (Poland). 2, W. Rayner (Brown Red Game). 3, J. Hare, Shotley, Ipswich (Duckwing). *c*, C. Denton, Lowestoft (Brahma); W. E. J. Shalford, Addington Park, Maidstone (Houdan); M. Leno (Brahma).

SELLING CLASS.—*Hens.*—1, Lady Gwydyr. 2, H. Grias Ipswich (Spanish) 3, R. W. Richardson (Dorking). *hc*, E. Branford (Black Red Game). *c*, H. N. Crozier (Black Red); F. A. Cole (Spanish); H. Dowsett (Brahmas); Nichols Bros. (Spanish).

PIGEONS.

CARRIERS.—*Cock.*—1, E. Horner, Harewood. 2, H. Yardley, Birmingham. 3, L. Wren. *hc*, T. King; J. Ford, London. *c*, W. N. Cater.

CARRIERS.—*Hens.*—1, E. Horner. 2, J. Ford. 3, T. King. *c*, S. Holroyd, Oldham; W. Crook. *Disqualified*, E. Horner (beak wattle glued).

POUTERS.—*Cock.*—1, J. Ford. 2, Mrs. Ladd, Calne. 3, E. Horner. *hc*, R. W. Richardson. *c*, W. Crook, Swansea (2); H. G. Holloway, jun., Stroud; E. Horner.

POUTERS.—*Hens.*—1, J. Ford. 2 and *hc*, Mrs. Ladd. 3, E. Horner. *c*, W. Crook.

TUMBLERS (Almond).—1 and 3, J. F. rd. 2, E. Horner.

TUMBLERS (Any other variety, Short-faced).—1 and 2, J. Ford. 3, J. W. Edge, Birmingham. *Trimmed*, E. Horner.

OWLS.—1, E. Horner. 2, J. Ford. 3, R. Richardson. *Disqualified*, J. W. Edge.

FANTAILS.—1, E. Horner. 2 and *hc*, H. Yardley. 3, J. W. Edge. *c*, Mrs. Ladd; J. F. Lovesmark.

JACOBINS.—1, J. Ford. 2, E. Horner. 3, G. South, New Bond St., London. *c*, J. W. Edge; E. Horner.

TURBITS.—1, J. Ford. 2, J. W. Edge. 3, G. South. *hc*, R. W. Richardson; O. E. Cresswell; H. Yardley.

BARBS.—1, J. Ford. 2, S. Holroyd. 3, H. Yardley. *c*, E. Horner.

NUNS.—1 and 2, Withheld. 3, R. W. Richardson.

TRUMPETERS.—1 and 2, E. Horner. 3, C. Norman, Ipswich.

DRAGOONS.—1 and 3, G. South. 2, S. Holroyd. *hc*, J. W. Edge; H. Yardley. *c*, J. Ford.

MAGPIES.—1 and 2, E. Horner. 3, R. W. Richardson. *hc*, H. Yardley.

ANY OTHER VARIETY.—1, T. D. Green (Blue Runts). 2, H. Yardley. 3, E. Horner (Swallows). *hc*, Rev. G. A. Brooke (Swallows); T. D. Green (Silver Runts); G. South (Persian); H. Yardley; J. T. Cater (Ice). *c*, W. Crook (Ice); S. A. Wyllie, East Mousley (Ice).

ANTWERPS (Working).—1, J. T. Galey, Colchester. 2, P. H. P. Price, Brecon. 3, E. Horner. *hc*, P. H. P. Price; F. Harwood, jun., Colchester; F. Mantherp. *c*, P. H. P. Price; T. King; J. T. Cater, Colchester.

SELLING CLASS.—1, H. Yardley. 2, 3, *hc*, and *c*, J. T. Cater (Black Carriers, Ice, Red Pouters, Red Mottled Tumblers, Yellow, White Fantails, Almond, and Starlings).

CAGE BIRDS.

NORWICH Yellow or Buff).—1 and 2, J. Mortimer, West Smithfield, London. *vhc*, T. Fenn, Ipswich; J. Mortimer (2).

NORWICH (Marked or Variegated Yellow or Buff).—1, R. Poole, Maldon. 2, *vhc*, and *c*, J. Mortimer. *hc*, T. Fenn.

BELGIAN (Clear or Variegated Yellow or Buff).—1 and *hc*, J. Hayes, Sutton-in-Ashfield. 2, J. N. Harrison, Belper. *vhc*, J. N. Harrison; T. Fenn.

LIZARD (Gold and Silver-spangled).—1 and 2, J. N. Harrison. *vhc*, *hc*, and *c*, T. Fenn.

MULE (Any variety).—1 and *hc*, R. Hawman, Middlesborough (Goldfinch and Canary). 2, Extra 2, *vhc*, and *c*, T. Fenn.

ANY OTHER VARIETY.—1 and 2, T. Fenn (Cinnamon). Equal 2, J. Mortimer (Crested Norwich). *vhc*, J. N. Harrison; A. Palmer (Buff Crested); J. Mortimer (Crested Norwich). *hc*, R. Poole (Jonque Cinnamon); J. N. Harrison; T. Fenn. *c*, J. Mortimer (Crested Norwich).

GOLDFINCH, BULLFINCH, OR LINNET.—1 and 2, J. N. Harrison (Goldfinch). SELLING CLASS.—1 and *hc*, T. Fenn. 2 and *c*, J. Mortimer. *vhc*, T. Fenn (9). FOREIGN BIRDS (Any variety).—1, E. Holmes, Colchester (King Parrot). 2, Mrs. Webb, Colchester (Australian Parroguets). *vhc*, O. Bawtree, Colchester.

RABBITS.

LOP-EARED (Any variety).—1, C. King, St. John's Wood. 2, H. Cawood, Thorne. 3, A. H. Easten, Hull. *hc*, H. Thurlow, Burnham Market; C. King. *c*, E. Robbiasn, Kettering; J. C. Garrington, West Bromwich; G. Slace, Hastings.

HIMALAYAN.—1, A. L. Peace, Doncaster. 2, W. Donkin, Driffield. 3, H. G. Hudson, Hull.

ANY OTHER VARIETY.—1, A. H. Easten (White Angora). 2, E. H. Gilbert, Rugby. 3, A. Wright, jun., Colchester (Angora). *c*, Master H. E. Manthorp, Colchester (Angora); C. King (Angora); W. H. Tomlinson, Newark (Angora).

SELLING CLASS.—1 and 3, J. Farrow, Romford (Lop-eared). 2, J. T. Cater (Angora). *hc*, C. King (Tortoiseshell); A. H. Easten (Lop eared, Spanish); F. Harwood, jun. (Tortoiseshell).

JUDGES.—*Pigeons and Rabbits:* Mr. W. B. Tegetmeier. *Cage Birds:* Mr. G. Moore, Park Street, Northampton. *Poultry:* Mr. E. Hewitt, Sparkbrook, Birmingham.

CARRIER PIGEONS—CONSTRUCTING A BREEDING LOFT.

I HAVE been several times requested to give my ideas with respect to the construction of a loft for breeding Carriers, and thinking they may be of service to your readers I forward them to you.

I believe non-success in breeding this noble variety of Pigeon is chiefly owing to several pairs being crowded together in a small space, the result being a great amount of damage to the adult birds by fighting—so frequently the cause of wing disease and canker—and the loss of numbers of eggs and young ones in the nest. Carriers are a prolific variety, and a good proportion of young birds may easily be reared. By adopting the plan I recommend, these misfortunes are entirely avoided, and, so far as I have myself practised it, I found it answer remarkably well.

The building may be erected at a very moderate cost. The erection is like an ordinary shed. A wall 9 or 10 feet high, with a south aspect, will answer for the back. The front of the shed should be 6 feet high, which allows of a 3-feet fall in the roof to carry off wet. The roof should be boarded flat with 1-inch deals (I mean of course with the above-mentioned inclination), felted, well tarred, and spouted. The ends of the shed, and the back, if there is no wall to work on, should be double-boarded, leaving about 3 inches between the inner and outer boards, and the vacancy well filled with sawdust. Such walls retain a more even temperature than brick or stone, being neither so cold in winter nor so hot in summer, and are, besides, less expensive. In width the loft may be 12 or 14 feet; the front boarded-up from the ground 3 feet high, the remainder to the roof wire netting. Inside under the roof shutters should hang on hinges, to fall down and cover the wire front during the cold nights, and at other times when necessary. When out of use they swing up and lie flat to the roof, where they are fastened, and are then quite out of the way.

At the back of the loft (there is no limit to the length except in the number of breeding pens required), is a platform 4 feet in width, half way between the floor and roof, to form the bottom of the pens. Thin iron rods, 1 inch apart, running from the platform up to the roof, form the front of the pens, each pen being 4 or 5 feet long (the longer the better) furnished with door, nest-box, &c. The loft at the length of every three pens should be divided, so that the occupants of every three pens may have their flight, bath, &c., in the area in front in turns. Thus the pairs are always separate, and breed undisturbed. Under these three breeding pens, which constitute one section of the loft, the front from the outer edge of the platform to the ground should be wired, with a door, and fitted with perches; so that will form a most convenient place to draft the young ones into as they are fit to leave their parents. As there will be two or three such compartments in a loft of any pretensions, the sexes can be separated when desired. In this arrangement the birds are always under command, and easily caught when required.

The finish of such a building is, of course, a matter of taste and outlay. The exterior may be planed and painted, or only in the rough and tarred, the inside in either case being well limewashed annually, at the commencement and close of the breeding season. —W. MASSEY, *Spalding*.

THE DRAGOON PIGEON.

MR. MINSON does not like the stout beak I advocate, nor yet the spinate, but the happy medium. I think, however, from his letter that he does not exactly understand my meaning. I do not wish it to be thought that I am in favour of the heavy coarse-wattled bird.

My idea of a Dragoon is as follows:—The bill should be strong from the base, and slightly curved at the end; the eye wattle neat, circular, and not pinched; a light-coloured beak inadmissable; the wattle on the beak should be fine and lie close. The eye should be full and bright. The bird should be very hard-feathered, with shoulders well out in front and have a good broad chest; but, however good in other points, I should pass them in the show pen if the carriage were not good. I think the Game cock is the best model in point of carriage for a Dragoon with its proud defiant look, with head erect, and ever on the watch. The blue rump is now universally acknowledged as being correct. The very broad bars I dislike; they should be jet black, well defined, and not exhibit the slightest approach to a sooty character, which so many Blues have at the edge of the bars. The birds should be of a good sound colour; light thighs I consider a great defect.

I hope some large breeders will take the matter up, and give us their experience, to see if we cannot set up a standard of excellence to aim at.—F. GRAHAM.

P.S.—As if still further to increase the difficulty, I have received word from a correspondent of mine, since writing the above, that at a local show held last week the first prize was awarded to a pair of Blue Dragoons with light rump and *white beaks*, and by an eminent Judge too.—F. G.

CRYSTAL PALACE BIRD SHOW.

(*Concluded from page* 184.)

AMONG Silver Lizards, No. 467, Mr. T. W. Fairbrass, was grand. There was size, colour, spangle, cap, and all the qualifications of a good bird. I just missed it, my friend, Mr. Hooke, having visited the green baize table before me. Mr. Harrison's 473, second prize, was another splendid bird, palish in colour, but a beauty, and Mr. Tuckwood's, 480, third prize, did not belie his judgment of what is requisite to constitute a high-class Lizard.

Among the Jonque Cinnamons were some unusually good birds, Mr. Etherington's 489 and 488, first and second, being stars, while Mr. Waller's hen, No. 505, well earned her third place. Someone on the look-out for a good thing secured her at £1. Northampton was in force in this class too, and in Buffs took all three prizes, Barwell & Golby's immense bird standing first. No. 537, Wallace & Beloe, very highly commended, was a gem of a hen.

Variegated Cinnamons were few in number, and nothing extra in quality. Something must be done to save this class of Canaries from becoming defunct. The north-countrymen who breed for size, shape, and marks, altogether irrespective of colour, though glad to get it when they can without sacrificing exact marking, grumble when a broken bird, rich in colour and quality, stands before a long, slim, half-washed-out bird, having nothing to recommend it but its marks, which, however, from want of colour, frequently scarcely show themselves; and the southern school, which believes in colour, grumbles in its turn when its bright specimens are passed over in favour of a bird it repudiates. Each should have its own class, or the class intended should be distinctly described on the schedule.

There was nothing very striking in the Any other variety, in which a Manchester Coppy, a Don, and a Crested Cinnamon shared the honours.

A word about the classification of the Mules. When I submitted my suggestions as to the improvement of the schedule, I had no idea of my rough copy being accepted in detail; in fact, I knew nothing of its being accepted at all till I received a printed copy. But it appears there is a misdirected letter somewhere on its travels, which, if I had received it in time, would have given me an opportunity of working out in detail what I had intended as a suggestion merely.

My impression was that the fact of the existence of Clear Mules being known militates against large entries in the "Clear for choice" classes. There can be no doubt of it. Last year there were but two entries in Jonques and four in Buffs in the "Clear for choice" classes. Besides, the old arrangement was devised to meet the claims of Mules which, though not absolutely Clear, are nearly so, and have at the same time no pretensions to be placed among Variegated specimens. The ideal of a Mule for a "Clear for choice" class is (next to Clear) one which at all events must, at the most, have no more decided marks than mere ticks; indeed, the "lateral extension" of the franchise was accorded to these ticked birds as a premium for honesty. It was argued that to make a class for positively Clear birds was to offer a premium for dishonesty, and therefore the "Clear for choice" clause was inserted. But look at the difficulty which arises out of its adoption! It drives every other class of Pied Mule into the one pen "Variegated," a position in which it is simply an impossibility for nine-tenths of them to have a ghost of a chance of winning, because the Evenly-marked among them must bear the bell. I am quite aware that the whole difficulty can be swept away at once by making three classes instead of two—*i.e.*,

A—Yellow Goldfinch Mule (Clear for choice),
B—Evenly-marked ditto,
C—Any other class of ditto,

always bearing in mind that the Dark Mules form a class by themselves, and that the three above-mentioned apply only to Pied Mules, and also bearing in mind that there ought to be

such an explanation attached to Class A, as to allow of no misconception as to its meaning. Of the two "Clear for choice" Jonques of last year, one was Evenly-marked; and among the four Buffs there was at least one which had eye marks, a dark feather in the tail, and a saddle!

In dividing the Mules into two classes this year I meant to suggest that the one should comprise the Evenly-marked birds, and the other all the rest; and my reason for suggesting that the Clear birds should go into the "Any other class," was that there is more analogy between an irregularly-broken bird (in its various degrees) and a Clear one than there is between an Evenly-marked and a Clear one. From the Clear bird to the Ticked is but a step, and from the Ticked bird to one more or less broken is but a step, but no reasoning can bring a Clear and an Evenly-marked bird together. Either is perfection in its way, and either represents the head of two classes very wide apart; the one a class in which a body mark (as distinguished from flight or tail marks) is only a blemish capable of measurement, the other a class in which even a tick is fatal. My idea, therefore, was that if in the "Any other class" an absolutely Clear bird was found, it should receive a special prize, which should not detract from the value of those succeeding it, so that the probability of such being exhibited would not act as a bar to probable success. Even if a Clear bird received a first, leaving it to the rest to fight out the battle for second and third, I still contend that irregularly-broken birds of size, colour, and quality, would have a chance of scoring, since the number of absolutely Clear birds in exhibition can be counted on your thumbs, while the number of those which lay claim to be called "Evenly-marked" is such that it is simply an impossibility for irregularly-broken birds to approach within three steps of the top of the ladder. I maintain that though it is capable of improvement, even this year's arrangement is better than last, and has secured a much larger entry.

Mr. Doel was first and second in the Evenly-marked Jonques. No. 567, first prize, was a grand bird, large, graceful, rich in colour, lightly and evenly marked, and everything one could desire in a Mule. It was catalogued at £1000, but up to four o'clock on Monday had not been claimed! No. 568, second, was another fine bird, but decidedly inferior to 571 (Mr. Ashton, third prize), which must have lost from want of condition. It was very lumpy. No. 569 (Doel) was a fine six-marked bird, and 570 (Doel) either had St. Vitus's dance or was subject to fits. Mr. Stansfield's 573 is a pretty Mule, but, unfortunately, the eye marks stretch over the crown, detracting from the merit of a really excellent bird.

In Buffs Mr. Baxter was first with something in hand. His 588 is a great Mule, and will take a deal of beating. Of 586 (Stansfield), second, I am sorry I can say nothing. I have either made a mistake in my notes, or have overlooked it entirely, and the same with 585 (T. E. Jeffs). They must, however, have been something out of the common when such birds as 582 (W. C. Burmiston), 584 (J. Stevens), 591 (Needler), all birds of note, stood beneath them.

Mr. Ashton obtained a special prize in the "Any other class of Yellow" with a Clear bird. I have myself given it a first as a Buff, as have other judges. Mr. Doel says it is *either*. In that case it is *neither!* But it is a very useful bird, which can win in two classes. On the wings and breast it is very high-coloured, but the head and neck is decidedly Mealy. It is a splendid bird. Mr. Doel monopolised the rest of the honours with a portion of his extraordinary stud. His 595 was a blaze of colour, and had a most perfect cheveral head; ditto 596.

In the corresponding class of Buffs Mr. Doel was first with neither more nor less than an "Evenly-marked" bird. A majestic Mule it is; but if a distinct mark in front of each eye does not constitute even marking, what does? On the assumption that these marks (which, though decided, are faint) are regarded as simple ticks, and that the bird more closely approximates to a Clear Mule than to anything else, the award is justifiable, not else. No. 614 (Ashton), good, one black feather in the tail being its pass. No. 621 (Jeffs), a nice bird, too, and 613 (Doel), looked very pretty, with good eyes and saddle.

I need hardly say that Stevens "walked in" with that awful Dark Jonque of his, and that something remarkable will have to be bred before Mr. Spence and Mr. Stevens can be deposed in the Linnet Mule class.

Remarkable hybrids were exhibited in the "Any other variety of Mule" division, in which, to some extent, the question of beauty of plumage is ignored in favour of rarity or singularity. It is a class in which everything is left to the Judges' discretion. But how a very inferior "Greenfinch and Goldfinch" could supplant the glorious "Bullfinch and Goldfinch" Mules is a thing no "fellah" can understand, and appeared to excite considerable surprise. Of hybrids which one has never met before it would be absurd to express an opinion, but their genuineness ought to be ascertained beyond a doubt.

The groups I must pass, wondering the while why neither of Walter's three splendid lots was deemed worthy of even an extra third, and how the six white hens came to be second.

The "miscellaneous" might well be dispensed with, and Mr. Gardiner's aviary, which was crammed with lively little chaps, suggests what might be done if a class for aviaries was substituted.

I have already extended this notice to an unreasonable length, and must pass the British birds without comment. The foreign birds are not my speciality, but Mr. Judd drew my attention to a Grey Parrot, which he said "had eaten his ticket because he was ashamed of it!"—W. A. Blakston.

LARGE versus SMALL HIVES.

Your correspondent under the *nom de plume* of "The Bee Hive" writing on this subject states that his experience, acquired during three years' observation of ten Woodbury hives, seems to prove that only eight of the ten frames composing a full-sized hive are ever in use at one and the same time for breeding purposes. My own experience has been, that not only are the whole of the ten frames in the stock-box frequently occupied by brood in various stages of development, but that several combs in a large super may in addition be almost entirely filled with brood. It may be a question of district, but it certainly is a question of the bee-master's keeping-up his stocks to the utmost point of population. With moderately strong colonies, the side combs, and possibly too large a proportion of the more central combs, are filled by the bees with honey, so that the queen is not able to use them for the deposition of her eggs. I have known, when an early honey harvest has set in, even the central combs to be almost entirely filled up with sealed honey, thereby paralysing the powers of the queen, and seriously affecting the prosperity of the colony. Your correspondent, if he had removed the two combs he states to have been full of honey, and had substituted frames with empty combs in their stead, would in all probability have found that the queen, if of average breeding capacity, would have at once appropriated nearly every cell for her own use, to the ultimate very great benefit of the colony.

Lest it should be supposed that I use small hives, I may state that my own ten frame hives are of considerably greater internal capacity than the Woodbury hives; in fact I always considered my late friend had adopted too small a hive for moderately good honey districts. Noticing how frequently prolific queens occupied every available space in my stock hives, a few years since I determined to endeavour to test their breeding powers to the utmost. I therefore constructed a box about 2 feet 6 inches in length, by 15 inches in width, to hold twenty-one frames of my ordinary boxes, the entrance being at one end, into which I hived a strong swarm. The queen was a hybrid Ligurian and very prolific. All the frames except the last three were more or less filled with comb, when a splendid swarm was thrown off. I examined the combs, and counted thirteen of them more or less occupied by brood, with by no means a large quantity of honey. To prove that honey was abundant, another hive in the same garden that summer gave a super of 75 lbs. The following season I altered this mammoth hive by fixing two division boards, having longitudinal apertures for communication, which I was enabled to open or close at pleasure. The central compartment held nine frames, and the two side ones five frames each. A colony was transferred into this modified arrangement of a Nutt's hive. The following year the communications into one of the side compartments were opened and some frames with comb added. These were quickly filled with eggs by the queen, and every comb was in use for breeding at the same time. A super was placed on the top, and subsequently removed with 40 lbs. of honeycomb. This last experiment was carried out almost in the centre of the city of Exeter—not, it would be supposed, the most favourable locality.

To sum up: I believe it comes to this, that a prolific queen with a sufficient number of subjects, can fill almost any amount of available comb with eggs. Of course it is obvious that no more brood will be hatched out than the population present can properly attend to, nor can such combs be made use of for brood if already filled up with honey. The prudent bee-master, therefore, who uses frame hives, will see that his breeding combs are not clogged up with honey.—S. Bevan Fox.

Your correspondent "The Bee Hive" asks for my opinion on this subject in connection with his proposal to use "Dummy Frames," by which I suppose he means frames of solid wood introduced into the larger-framed hives so as to contract the space. I have used them myself in former years, and they

answered the purpose very well, but on the whole I preferred using the super over a smaller hive. I find that it is merely a question of season or fertility of queen, whether the outer combs I and 10 are used for breeding or for honey. One year they will be filled with brood and the next with honey. Of course, if you give them twelve or fourteen combs there will be less chance of the outer ones being occupied with brood. My own hives, which are long and narrow, the combs running crosswise, were last summer filled with brood from end to end, in all cases where the honey of the year before had been eaten out, as well as from side to side. Some of these hives are 16 or 17 inches long in the clear. If the summer had been prolific in honey the outer combs, as the year before, would have been full of honey. Latterly I have shortened the length of these hives by a couple of inches, preferring to force the bees to store any excess of honey in the supers. But I do not find, even when the queen breeds in the supers, that it makes any practical difference in the amount of egg-laying that goes on below.—B. & W.

VENTILATING HIVES.—In the Journal of February 8th Mr. Bevan Fox mentions perforated zinc placed on the top of the hives to let out the damp air. I quite agree with him. All my bees are alive in the wooden boxes that had the perforated zinc on their tops, but in one without the ventilation the bees are dead. The combs in it appear greenish and mouldy. The floor-board appears dry, but slightly mouldy.—BURTON JOYCE.

OUR LETTER BOX.

APPEALING FROM THE JUDGES' DECISION (*An Exhibitor and Committeeman*).—The rule, "No appeal from the decision of the Judges shall be entertained upon any grounds whatever," only applies to appeals from dissatisfied exhibitors. If fraudulent trimming, pinning of combs, and fastening-on sickle feathers are detected on prize birds, even after the Judges are gone, we think the prizes should be withheld, for the exhibitors have violated another rule—He who claims equity must do equity.

WHITEHAVEN POULTRY SHOW.—Mr. J. Walker says that he had only just received the cock that had a pin thrust through his comb, and that nothing was done in the way of trimming whilst the bird was in his possession. The other two exhibitors whose birds were disqualified, because trimmed, say the same about their birds. It is no excuse, for they should all have examined their birds before they sent them to the Show.

DIARRHŒA IN HENS (*A Lover of Poultry*).—We do not like your feeding. We tried Corn Exchange sweepings, and found them expensive and unsatisfactory food. You never know what they contain. We care little for toppings or middlings. If you will give ground oats or barleymeal slaked with water in the morning, table scraps or Indian corn at midday, and a repetition of the morning meal in the evening, discontinuing all inventions and stimulants, your fowls will get well. If you continue your present management they will all die. Let them have cabbage leaves or lettuces, or some other green food, whenever they cannot have the grass run. None is so good as a sod of growing grass.

SPANISH COCK'S COMB UNDEVELOPED (*E. H. B.*).—Sell him; he will make little, because a shrivelled comb in a Spanish cock is indicative of internal disease, and is a symptom of "black rot," to which this breed is subject, and from which they never recover.

BRAHMA COCK (*Brahma*).—In all competitions of animals it is an axiom that, as the best is not too good, that which is faulty is not good enough. You wish to breed prize birds. You will not do it with a cock that has two capital defects—vulture hocks and lop comb. Take him from the hens at once, if you have not done so already.

BREEDING SPANISH FOWLS (*W. E. S.*).—A Spanish cock with a lop comb is worthless, so is a Spanish hen with an upright one. There is a proverb—

"A whistling girl and crowing hen
Are neither good for ; ards or men."

To breed perfect birds both parents must be so. The comb of the cock must be faultlessly erect, that of the hen must lop over. The crowing hens are only nuisances and should be got rid of at once. They do not lay, and the apparent alteration of sex is caused by internal ruptures that render laying impossible. Spanish are more prone to this fault than any other breed, and when we see a hen's comb go up we put her in the pot.

DESIRED FOWLS (*Digitatis*).—The fowl that will come nearest to your description is the Brahma Pootra, because it realises the last requirement—most easily keep. A fence 3 feet high will keep Brahmas in confinement. Spanish, Hamburghs, and Crève-Cœurs are all hand-some, they are excellent layers, but do not sit. We know no fence that will confine either of them. The only way is to keep them covered-in at top.

EXPORTING FOWLS TO QUEENSLAND (*K. M. H.*).—If your friend takes the fowls in charge you need not ship as much food as if they went alone, because he can always get scraps from the steward, and secure them food in odd bits. To guard against accidents you will do well to provide yourself with fourteen bushels of barley, and two bushels of gravel, or three if you can take it. It will help you to keep them in health if you take out some rape seed, and from time to time make it grow in your cabin in wetted flannel.

STARTING LIGURIANS—SIZE OF WOODBURY HIVES (*J. L.*).—You had better write to Messrs. Neighbour, of Regent Street, London, who will be able to supply you with either Italian queens or with stocks, and will also give you the necessary instructions as to your subsequent method of procedure. We think you are mistaken in supposing eight-frame Woodbury hives superior in your district, or any other, to the ten-frame boxes. If by judicious management you keep your colonies up to the greatest possible strength, we think you would find that your ten-frame boxes would prove far more remunerative than the smaller ones, both swarms and honey-yield usually being proportionately larger.

PAINTING STRAW HIVES, &c. (*L.*).—We have a strong objection to painting straw hives, though Mr. Payne and others recommend it. We have tried both that and covering them with Roman cement, and the bees did not thrive well under either. The latter was, however, much the more palpably injurious. Mr. Payne recommended the hive to be painted stone colour. We do not know the maker nor the price of the Cambridge Hive.

METEOROLOGICAL OBSERVATIONS,

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude 111 feet.

DATE.	A.M.					IN THE DAY.				
1872. Feb.	Barometer at 32° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 ft.	Shade Temperature.		Radiation Temperature.		Rain.
		Dry.	Wet.			Max.	Min.	In sun.	On grass	
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 21	30.023	39.2	37.8	W.	42.4	52.6	34.2	91.8	28.3	—
Th. 22	30.150	43.5	43.0	S.E.	42.0	49.4	33.2	67.0	26.6	0.199
Fri. 23	29.765	43.3	42.4	S.	42.6	49.8	39.8	67.1	37.4	0.010
Sat. 24	29.554	46.3	45.7	S.	42.8	55.3	44.8	62.4	36.7	0.030
Sun. 25	29.484	5 7	50.1	S.S.E.	44.3	56.5	46.0	87.4	41.3	0.040
Mo. 26	29.538	48.1	43.6	N.	44.7	52.5	40.0	83.4	35.1	—
Tu. 27	30.157	40.4	38.4	N.	42.9	47.3	35.3	90.2	32.9	—
Means	29.8 9	44.0	43.0		43.2	51.9	38.6	78.7	34.1	0.279

REMARKS.

21st.—Very fine all day with fine sunset.

22nd.—Early part rather cold, but dry all day, though not so bright as yesterday.

23rd.—Heavy rain from 6 to 9 A.M., damp morning, and very dark, cleared about noon, shower at 4 P.M., but fine evening.

24th.—Rainy and dull morning, rather finer in middle of the day, but showery and damp.

25th.—Rain in the morning and about 5 P.M., sunshine in the middle of the day and evening.

26th.—Rainy morning, fine about noon, dark in early afternoon with partial showers, wind changed to north.

27th.—Fine bright day though rather cold, a slight shower about 11 A.M., but all else bright and dry. "Queen's weather."

Although the sun is now gaining power, its influence is at present quite superficial, as will be seen by comparing the average temperature in sun with that of previous weeks, and then similarly comparing the temperature of the soil.—G. J. SYMONS.

COVENT GARDEN MARKET.—FEBRUARY 28.

PRICES of rough out-door produce have somewhat receded, and the supply continues heavy, orders from the northern markets having failed to clear out the dealers' stands. Hothouse fruit is sufficient, although the supply of Pines is rather limited, but we are still having some fine fruit from St. Michael's, which takes their place, the quality being very superior.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples ..... ½ sieve	2 0	to 4 0	Melons ..... each	0 0	to 0 0
Apricots ..... doz.	0 0	0 0	Mulberries ..... lb.	0 0	0 0
Cherries ..... lb.	0 0	0 0	Nectarines ..... doz.	0 0	0 0
Chestnuts ..... bush.	10 0	20 0	Oranges ..... ₱100	4 0	10 0
Currants ..... ½ sieve	0 0	0 0	Pears, kitchen ..... doz.	2 0	4 0
Black ..... do.	0 0	0 0	dessert ..... doz.	3 0	8 0
Figs ..... doz.	0 0	0 0	Pine Apples ..... lb.	6	8 10 0
Filberts ..... lb.	0 6	1 0	Quinces ..... doz.	0 0	0 0
Cobs ..... lb.	0 6	1 0	Raspberries ..... lb.	0 0	0 0
Grapes, Hothouse .... lb.	6 0	12 0	Strawberries ..... lb.	0 0	0 0
Gooseberries ..... quart	0 0	0 0	Walnuts ..... bushel	10 0	25 0
Lemons ..... ₱100	7 0	10 0	ditto ..... ₱100	1 0	2 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes ..... doz.	4 0	to 6 0	Leeks ..... bunch	0 2	to 0 4
Asparagus ..... ₱100	6 0	10 0	Lettuce ..... doz.	1 0	2 0
Beans, Kidney .... per 100	3 0	5 0	Mushrooms ..... pottle	1 0	2 0
Broad ..... bushel	0 0	0 0	Mustard & Cress .. punnet	0 2	0 0
Beet, Red ..... doz.	1 3	3 0	Onions ..... bushel	2 0	4 0
Broccoli ..... bundle	0 2	1 6	pickling ..... quart	0 6	0 6
Brussels Sprouts .. ½ sieve	1 6	3 0	Parsley per doz. bunches	3 0	4 0
Cabbage ..... doz.	1 0	1 6	Parsnips ..... doz.	0 9	1 6
Capsicums ..... ₱100	0 0	0 0	Peas ..... quart	0 0	0 6
Carrots ..... bunch	0 6	0 0	Potatoes ..... bushel	2 0	3 0
Cauliflower ..... doz.	2 0	5 0	Kidney ..... do.	3 0	5 0
Celery ..... bundle	1 6	2 0	Radishes .. doz. bunches	0 6	1 0
Coleworts .. doz. bunches	2 0	4 0	Rhubarb ..... bundle	0 6	1 0
Cucumbers ..... each	1 0	3 0	Savoys ..... doz.	0 9	1 6
pickling ..... doz.	0 0	0 0	Sea-kale ..... basket	1 0	2 0
Endive ..... doz.	2 0	0 0	Shallots ..... lb.	0 4	0 9
Fennel ..... bunch	0 3	0 0	Spinach ..... bushel	3 0	4 6
Garlic ..... lb.	0 2	0 0	Tomatoes ..... doz.	0 0	0 0
Herbs ..... bunch	0 3	0 0	Turnips ..... bunch	0 3	0 6
Horseradish ..... bundle	3 0	4 0	Vegetable Marrows .. doz.	0 0	0 0

POULTRY MARKET.—FEBRUARY 28.

The supply is rather shorter, and the spurt given by the Thanksgiving-day having caused rather a large demand, a rise has taken place. We do not think it will be maintained.

	s. d.	s. d.		s. d.	s. d.
Large Fowls	4 0	to 4 6	Partridges	0 0	to 0 0
Smaller ditto	4 0	0 0	Hares	0 0	0 0
Chickens	3 0	3 6	Rabbits	1 5	1 6
Goslings	7 0	7 6	Wild ditto	0 9	0 10
Ducklings	5 0	5 6	Pigeons	0 9	0 10
Pheasants	0 0	0 0	Guinea Fowl	3 0	3 6

WEEKLY CALENDAR.

Day of Month	Day of Week.	MARCH 7—13, 1872.	Average Temperature near London.			Rain in 43 years.	Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	Days.	m. h.	m. h.	m. h.	m. h.	Days.	m. s.	
7	Th	Meeting of Royal and Linnean Societies.	49.1	32.4	40.7	18	35 af 6	49 af 5	11 af 6	58 2	27	11 6	67
8	F		49.1	31.5	40.3	18	33 6	51 5	40 6	22 4	28	10 51	68
9	S		49.2	31.1	40.1	12	30 6	52 5	0 7	46 5	●	10 36	69
10	Sun	4 Sunday in Lent.	49.6	31.6	40.6	16	27 6	54 5	19 7	9 7	1	10 20	70
11	M	Meet. of Royal Geographical Society, 8.30 P.M.	49.1	32.2	40.7	19	25 6	56 5	37 7	26 8	2	10 4	71
12	Tu		50.4	32.2	41.3	21	22 6	58 5	53 7	43 9	3	9 48	72
13	W	Royal Botanic Society, Spring Show.	50.4	34.0	42.2	15	20 6	59 5	11 8	56 10	4	9 31	73

From observations taken near London during forty-three years, the average day temperature of the week is 49.5°; and its night temperature 32.1°. The greatest heat was 67°, on the 10th, 1826; and the lowest cold 7°, on the 10th, 1847. The greatest fall of rain was 0.60 inch.

HARDY AND EXOTIC FERNS.

Is there a lover of gardening and of the graceful in nature, who does not admire the finely-cut feathery plumes of hardy and exotic Ferns? We admire them wherever we find them, whether if climbing up the steep hill-side we meet with the Mountain and Three-branched Polypodies, or scrambling among the loose and crumbling rock at its base we chance to light upon the Allosorus crispus, growing among the fragments in dense tufts like finely-cut Parsley. From mountain sides we ramble into shady dells where we are at home amongst the nobler-growing of our native species, the broadly-arched compound fronds of Lastrea dilatata, the robust Male Fern, Lastrea Filix-mas, and its graceful companion, most exquisitely beautiful of all British species, the Lady Fern. Let us walk along the seacoast, and hanging from precipitous and inaccessible rocks, braving winter's cold and summer's heat, we find the dark-green-foliaged Asplenium marinum.

All our native species are amenable to cultivation. Some of them will thrive under very adverse circumstances, but for others careful culture is necessary. Growing as they naturally do in such totally different places, a somewhat different course of treatment should be given to each, although it is not essential to imitate Nature closely. I have dug up the Allosorus crispus from the exposed side of a Scottish mountain, where it was growing in little else but powdered rock, and it throve perfectly planted in deep rich peat on the north side of a high wall in the suburbs of London. The Asplenium marinum, growing on exposed rocks on the east coast of Scotland, will not live through the winter in the same neighbourhood, and barely exist in summer; but if potted in turfy peat and loam, and placed in a warm moist atmosphere, such as that of a plant stove, it will soon make a handsome specimen, and throw-up luxuriant fronds 18 inches in length. Another very interesting native species is the Ceterach officinarum, or common Scale Fern. It is generally found growing on old walls; indeed I do not know that it has been found in any other position. It flourishes in a shady part of the greenhouse, in a pot half full of drainage, with a compost of equal parts sandy loam, rough mortar rubbish, and pieces of broken bricks. As to the more robust species, such as Polystichum, Lastrea, Athyrium, &c., they will grow anywhere if the soil is suitable, and if they do not suffer from lack of moisture in summer. Some of the rarest of them well deserve a place under glass, such as the many fine forms of the Lady Fern, some of which are unsurpassed for pictorial effect. Grown in pots as Messrs. Ivery and Son, of Dorking, and Mr. Chaff, gardener to A. Smee, Esq., of Wallington, staged them at South Kensington last year, they have a fine effect. Athyrium F.-f. cristatum, Vernoniæ, pulchellum, plumosum, and Iveryanum are very distinct forms. For pot-culture they are quite as interesting, and rival in beauty (if they fail to do so in majestic appearance) the stately tree Ferns of the antipodes.

To grow hardy Ferns in perfection a humid atmosphere is necessary, and when they are making fresh growth the house which holds them should be shut-up in the afternoon, and the plants syringed through a rose. Under such circumstances the young fronds develope themselves as if by magic, and are a source of much enjoyment to those who take an interest in this class of plants. Ferns from warm latitudes, as a matter of course, require a higher temperature—55° in winter is a good medium for them, and from 65° to 70° in summer is essential as a night temperature. Nearly all the species luxuriate in a compost of equal parts turfy loam and tough fibry peat, with the addition of a fair proportion of silver sand and a few lumps of charcoal. It is of vital importance that the drainage be perfect, as the Fern, though a moisture-loving plant, dislikes stagnant water about the roots. The potsherds used must be clean, and placed with the convex side downwards, the largest pieces at the bottom, the smallest at the top, and over this some fibry material must be placed to prevent the mould used in potting from mixing with the drainage. In potting press the compost in firmly, but not so much so as is done with fruit trees or hardwooded greenhouse plants. Overpotting should also be avoided, as, indeed, this is frequently the cause of failures. The fresh compost gets sodden with water before the roots can ramify into the mass, and mischief ensues.

Then with regard to propagation. Some of the species are very easily increased by division, and it is thus that most of the Adiantums and Pterises are reproduced. Take, as an example, that most useful of all the Maiden-hairs, Adiantum cuneatum. We are continually using its delicately-cut fronds for hand, button-hole, and other bouquets, and well-grown plants of it are always ready for dinner table and general in-door decoration. You may take a large plant, and with a knife or small trowel divide it into a dozen pieces, which if put into small pots, and placed in a close moist atmosphere and a stove temperature, will each make a nice plant in a few weeks. Some species grow with a single stem, and therefore cannot be divided. Of these the Lomaria gibba is one, and a very desirable species. It is very freely propagated from spores, about sowing which there is no need to trouble, as, if they are allowed to ripen, the young plants will be plentiful enough. However, should a large quantity be required, it is as well to sow them. Seed-pans or ordinary flower-pots should be used for this purpose. Drain them well, and fill-up with the compost already recommended, but with the addition of a third part of pounded bricks. The spores when matured should be placed on the surface, and, after being watered with a fine rose, covered with a square of glass to maintain a moist atmosphere.

I will now enumerate a few of the most desirable species for stove and greenhouse decoration. Of late years many new species and forms have been introduced to our notice. Adiantums are amongst the most valuable for general decorative purposes. A. cuneatum is the most generally useful of the whole. A. farleyense must

be in all collections. A well-grown specimen is worthy of all the commendatory superlatives that can be bestowed upon it, but to keep it in good health a position free from draughts must be chosen for it in the stove. A. Sanctæ-Catherinæ is a free-growing species, and makes a noble specimen for exhibition. A. formosum succeeds in the greenhouse, and the fronds last a long time after being cut. A. colpodes is a very free-growing, pretty, greenhouse species, and has the young fronds tinged with red. A. tinctum has the young fronds more deeply tinged than in the above, but it is not free-growing. But by far the best of the tinged or tinted species is one I met with the other day in the nurseries of Messrs. Veitch, at Chelsea. It is of free growth, the fronds are much larger and more elegant than those of A. colpodes or A. tinctum, and of a deep red colour in a young state; it is named A. Veitchianum. I remarked at the same time A. peruvianum as a noble-growing species allied to A. trapeziforme. It will, no doubt, make a handsome specimen for exhibition, as it is of vigorous growth, and the fronds have a remarkably pendant character, giving the whole plant a distinct and fine effect. A. sessilifolium is also a very well-marked species of a deciduous character. The fronds are freely produced, and very handsome.

Amongst Aspleniums, A. cicutarium and A. formosum have very graceful recurved fronds, and are valuable table plants. Cheilanthes is a genus noted for its very elegant and finely-divided fronds. Davallia is also a noted genus with fronds of a very graceful character. At the head of this class stands the recently-introduced D. Mooreana. It is one of the most beautiful and valuable of Ferns, with gracefully-arching fronds from 2 to 3 feet in length, and half as much across. From the largest of the species we come to the smallest, D. parvula, a warm stove species, the fronds of which are only 3 inches in height, freely produced on a creeping rhizome. Gymnogramma has gold and silver fronds of a very distinct and striking character. The true G. chrysophylla is very handsome. G. Laucheana has fronds of the deepest yellow. The best silvery species I am acquainted with is G. peruviana argyrophylla; and next to it G. tartarea. G. Pearcei is an exquisitely beautiful species, with very finely-divided fronds of a distinct character. Leptopteris superba is a greenhouse Fern, and requires to be grown under a glass shade. It, however, deserves all the care that can be bestowed upon it. Lomaria gibba, and its variety Belli and crispa, must be in all collections. Then the Climbing Fern, Lygodium scandens, will find a place on account of its unique character. Todea pellucida and T. Wilkesiana require the same treatment as Leptopteris superba, and should have a glass frame devoted to them in the greenhouse. Amongst Pteris we would select P. serrulata, as it grows freely either in the stove or greenhouse, though the handsomest specimen I have ever seen was said to have been grown out of doors. These are a few names out of the many, and are selected from those I have cultivated, or those which have come under my own notice. The graceful Gleichenias are omitted because they require special treatment; and also the noble tree Ferns, as they require large structures to grow them in. Those I have named are all adapted for ordinary stove or greenhouse cultivation.—J. Douglas.

SPRING TREATMENT OF AURICULAS.

An observation made by one to whom we all as readers of the Journal are much indebted, and whose instructions we are generally ready to follow, Mr. W. Keane, has induced me to say a word or two on the above subject. I am very sorry to differ from so experienced an adviser, but I must fain do so. In his advice as to the treatment of Auriculas he says, "Let them have gentle showers," or words to that effect. Now from this I entirely dissent; and I maintain that the Auricula ought never to have a drop of rain, and least of all in the spring. Every grower of this beautiful flower knows that its greatest enemy is damp, and that his efforts are directed to the great end of giving it a free and open situation, keeping it free from drip, and not allowing water to settle in the heart of the plant. Unless you are for ever near your frames, it is impossible to do this and yet let them have any rain. If you leave directions with your man that they are to have only gentle showers, you will find some day to your cost that his idea of a gentle shower differs very widely from yours; just as my old man at Deal, who, when I told him they must not be exposed to too much cold wind, shut them up close, burned them up, and then told me calmly he thought the maggot had got to them. Hence, for the safety of your collection, I strongly advise no showers. But even if you allow them to get rain under your own eye, the drops will settle in the heart of the plant, and then canker and decay take place. Rain may possibly run off the plain-foliaged plants, but those with the mealy foliage retain it very pertinaciously, and nothing will free them of it except taking the plant up and blowing the water off. Then, too, I think that to allow the mealy-foliaged plants to become spotted with rain entirely destroys their beauty. I grudge even when watering that the outside leaves should get any on them, and should sadly grieve if the beautiful young leaves were to be thus injured.

I should like to know if all Auricula-growers share my opinions on this point. I have before me a letter from a son of that (in his day) well-known florist, Dr. Horner, who has evidently imbibed his father's taste, and is an enthusiastic florist. He says, "Even in this fine bracing air I never allow my Auriculas to have wet overhead. I do not even like my mealy grass splashed at any time, nor a wet heart for even a day among any of them." I know, too, that this is the opinion of the veteran grower George Lightbody.

I hope Mr. Keane will pardon these remarks on so small a point, but as I believe it to be one of importance to the successful growing of this lovely spring flower I could not well be silent.—D., *Deal.*

CHEAP SPRING GARDENING—PLANTS TO BE RAISED FROM SEED.

Plants of which the seeds should be sown in a border rather thinly a month hence, or in pots, boxes, or pans now, placed in a pit or cold frame, and the seedlings to be pricked out afterwards, and then transplanted in the autumn or early spring:—

Anemones, of the coronaria and the hortensis kinds. Many will show bloom in autumn.

Arabis (Wall Cress), several kinds, prick out and lift in autumn.

Bellis (Daisies), white and red are most useful. Prick them out, and many will show their colours in autumn.

Cerastiums. Good for carpeting and edgings. They are best propagated by cuttings, which if planted in a border will soon root. Seedlings to be pricked out.

Cheiranthus (Wallflowers). Sow in the open air. Prick out and move in autumn to the place.

Eranthis (Winter Aconite). Sow as soon as the seeds are ripe. In the first, and especially the second autumn, they will be fit for the flower garden.

Myosotis (Forget-me-not). Sow in June and July, prick out, and then lift where wanted. There are several good varieties, white and blue.

Primroses sown in April and pricked-out, will make strong plants by the autumn. Polyanthus the same.

Violets (Sweet), are most readily obtained from divisions planted and then lifted, but the single varieties also come up freely from seed, and the seedlings will make good plants before the spring. I find, however, that cuttings or divisions bloom most freely.

Pansies. Many, such as the Cliveden Blue, Yellow, Purple, and White, come rather true from seed. The English and Fancy or Belgian varieties are easily raised. Sown in July and August, not too thickly, they would show their colours so as to be transferred to the flower-beds in autumn and spring. Seeds to be sown in summer and autumn, and the seedlings lifted in patches for the flower garden late in autumn or early in spring.

Collinsia bicolor, grandiflora, and verna. The end of August would be quite early enough.

Erysimum Perofskianum. Rather lanky, about 2 feet high, but the flowers of a fine orange colour. The beginning of September will be soon enough to sow.

Iberis (Candytuft), of all the colours will be early enough if sown at the beginning of September.

Lasthenia californica. Sow at the same time as the preceding.

Limnanthes Douglasii. The same remark applies to this.

Myosotis. Different colours of Forget-me-not. For spring blooming, sow from June to August.

Nemophilas. The whole are worthy of a place in a spring garden, though insignis is the best. Sow at the beginning of September, and transplant in patches.

Saponaria calabrica, calabrica alba, and the dwarfer ocymoides are useful. Sow at the end of August, and lift the seedlings in tufts in autumn or early in spring.

Silene pendula, pendula alba, ruhella, Schafta, and other dwarf kinds, may be sown at the end of August and the beginning of September.

I have omitted, I find, two useful annuals, Sweet Alyssum, or Alyssum maritimum, white and rather straggling, but it stands pruning well, and smells like so many exposed honeycombs.

Sown in September it will lift well in patches in autumn and spring.

Eschscholtzia californica, crocea, alba, and tenuifolia are very gay plants. If sown in spring they will bloom in summer and autumn. Sown in July and lifted, they will bloom early in spring.

Most of the foregoing annuals will do best if lifted not singly but in patches, say six or more plants in a patch, with a little ball of earth about them. In somewhat stiff soils they need little more than to be sown on a fine surface, and to be covered with light sandy soil. In light soils I find it a good plan to dig the soil, tramp it rather firm, stir the surface to the depth of 2 or 3 inches, and incorporate with it some rough fresh loam and leaf mould, or rotten dung. Pat the surface even, but not hard, sow the seeds, and cover with some fine soil. With the ground thus prepared the plants may be raised with a trowel in little tufts or patches, with the rough soil adhering to the roots, and they will scarcely suffer from the removal when transferred to beds or borders.

So much for sowing for flower gardens in spring, but if you mean to enter on the subject at all seriously and to any extent, the best advice I can give you is to obtain "Spring and Winter Gardening," by Mr. John Fleming, which you can have by post for 2*s.* 7½*d.* I should have little faith in any Coleus planted out except the brown Verschaffelti.

I find I have omitted red and white Virginian Stock, which for spring blooming should be sown from the middle of September.—R. Fish.

SETS OF EARLY POTATOES.

I have lately seen it seriously recommended to rub off all the forward shoots, and then plant as the eyes are again beginning to show. This can only be justified as being the least of different evils. I would never allow a shoot to be removed from early Potatoes, but would have them in the ground before these stout shoots were more than 3 inches in length. I should like to have seed early Potatoes set close together, but singly, on platforms or open shelves, if only a foot apart; and in such a position, and kept merely secure from frost, the tubers would shoot strongly but late, and there would be no necessity for lessening their strength by rubbing off the shoots.

In these modern days, and under the system of modern gardening, the old gardeners would be unable to find shelf-room for their flowering bulbs and tubers, let alone doing justice to their seed Potatoes. In the majority of gardens where there are even show plant-houses there is a great want of room for storing.

I may here add that after having tried all kinds of sets for Potatoes—cutting them into pieces, each having one good eye or bud, as I should most likely do in the case of a new expensive kind, using the bud with merely a slice attached (the bulk of the tuber being used for food), and even propagating by rooting shoots, as we would do with a Dahlia—the results of my practice are simply these, that a middle-sized tuber entire gives on the whole the earliest and heaviest returns. If the different eyes begin to move it is well, however, to rub off all except one or two of the strongest. I say advisedly one or two, because, though I have planted rows close together, one having sets with one eye and another with two eyes, I could not satisfy myself by the size of tubers, weight, or measure, which was the better, but I found the crops in either case earlier and better than when I put a tuber in and left the different eyes to struggle with each other for the mastery. If I have any preference at all, it is to have one shoot from a tuber instead of two or more.—R. F.

GRAFTING.—No. 4.

Side Grafting.—Under this head M. Baltet treats of two modes of grafting—one, which he calls sub-cortical, or under the bark, in other words between the bark and the alburnum; and the other on the alburnum. For all practical purposes they might have been embraced under one head, for all grafting to be successful must be on the alburnum. However, we shall for the present adopt these distinctions of M. Baltet, and treat the subject after his method.

Sub-cortical Grafting.—If we wish to implant a twig on the side of a stem or under its bark, the stock ought to be in a state of growth. The operation is done—1st, from April to May at the rising of the sap, and then it is called, by an active bud; 2nd, from July to September, when it becomes a graft by a dormant bud. In the former case scions of the previous year are employed which have been laid in the earth with a northern exposure, or in a cellar, to preserve their vitality. The sap being in action in the plants at the time they are used, the graft will be developed in the course of the same year. In the second case (from a dormant bud) where the graft will be developed in the following year, a shoot of the current year is chosen, and is taken from the parent tree at the time of grafting, the leaves being removed if the tree employed is deciduous. Scions taken from evergreen trees should not be cut from the parent tree till they are required, neither ought the leaves to be removed. For these two methods, the summits of the twigs with a terminal head form excellent scions.

There are two systems of sub-cortical side-grafting, one having for a scion simply the fragment of a twig; the other a twig with a heel or shield, such as is used in autumnal budding, taken from the branch which produced it.

Side-grafting with a Twig.—This process is important for restoring defective trees, to obtain branches where they are required, and to change old varieties. It is equally useful for propagation. The woody scion is better adapted to inoculation under the old bark than the single bud generally used. The scion is a small twig, or the fragment of a twig, from 4 to 8 inches long, the inferior half of which is cut slantingly without a tongue to disturb the plane surface of the cut, which is cut then towards the point B. If it is desired to get a branch forming an open angle with the stem which bears it, a crooked or curved scion is chosen; the cut, on the convex part being applied to the stock, will give the summit a direction outwards. With a straight scion it will suffice to preserve a bud on the back of the cut, the growth of which will form a branch nearly perpendicular to the stem.

In the propagation of certain trees, as the Beech, branching scions are employed of two or three years old, and in them the cut is made, as we have stated, then at the point. The scion being prepared, two cuts are made on the stock (A), forming an incision (C), like a T, right through the bark to the alburnum. The sides of the incision are raised, and the scion is slid into it, so that the top of its cut corresponds with the transverse incision on the stock. The graft is then bound with a ligature, and if there is imperfection in the union between the two parts, the action of the air is excluded with the leaf of a tree, or by the application of clay or grafting-wax.—Baltet, *L'Art de Greffer.*

PORTRAITS OF PLANTS, FLOWERS, AND FRUITS.

Bulbine Mackenii (Bulbine of MacKen). *Nat. ord.*, Liliaceæ. *Linn. arr.*, Hexandria Monogynia.—Sent from Natal by Mr. MacKen, and has already flowered two seasons in the Royal Gardens at Kew. The root and neck of the plant are clothed with matted red-brown filaments. The leaves are from 2 to 3 inches long, and from 1¼ to 1½ broad, smooth, rather fleshy, nerveless, and pale beneath. Raceme 6 to 10 inches long, with from twenty to thirty bright golden-yellow flowers on pedicels spreading out almost horizontally. Perianth segments extending out almost from the base, with green tips and a keel at the back. Ovary three-lobed; stigma minute.—(*Bot. Mag.*, *t.* 5955.)

Dendrobium tetragonum (Four-cornered Dendrobium). *Nat. ord.*, Orchidaceæ. *Linn. arr.*, Gynandria Monogynia.—A native of the wooded islets in Moreton Bay. Stems in a dense fascicle, from 5 to 16 inches long, acutely tetragonal, and gradually blending into a slender round stalk, which expands into a woody, globose, tuberous base, emitting roots that attach the plant to the bark of the tree it grows upon. Each pseudo-bulb has a pair of undulating, coriaceous, keeled leaves. Flowers a pale dirty yellow suffused with pink on a slender yellow peduncle. Two lateral sepals twisted and edged with red. Lip whitish, with transverse pink bars.—(*Ibid.*, *t.* 5956.)

Exanthemum palatiferum (Palated Exanthemum). *Nat. ord.*, Acanthaceæ. *Linn. arr.*, Didynamia Angiospermia.—A native of the hilly regions of Bengal. Leaves petioled, sometimes blotched with white. Spikes glandular, pubescent, recurved, many-flowered. Flowers subsecund, two-lipped, lilac or scarlet, with a yellow spot on the lower three-lobed lip.—(*Ibid.*, *t.* 5957.)

Cœlogyne lentiginosa (Freckled Cœlogyne). *Nat. ord.*, Orchidaceæ. *Linn. arr.*, Gynandria Monandria.—Stem stout, creeping, as thick as a swan's quill, clothed with rigid brown scales. Pseudobulbs erect, trigynous, smooth, green, up which the brown sheaths reach half-way. Leaves, two at the top of the pseudobulb. Raceme produced at the base of the last-formed pseudobulb. Flowers on a floriferous peduncle covered with convolute green scales, pale green. Lip white, with a broad ochreous blotch on the mid lobe; the margins of the lateral lobes are brown, and there are freckles of the same colour on the disk. Mid lobe with a broad flat claw, broadly trowel-shaped, undulate. Column slender, narrowly winged. —(*Ibid.*, *t.* 5958.)

Zonal Pelargonium Ianthe.—"The habit of the plant is moderately vigorous, the leaves neat, and marked with the characteristic zone, while the flowers are large, well formed, and abundantly produced in bold, conspicuous, nosegay-like trusses. The colour is very difficult to note, a peculiar bluish tint mingling with the crimson. We append the description given in the catalogue of Mr. William Paul, of Waltham Cross, by whom Ianthe, with several other fine novelties obtained by Dr. Denny—notably Wellington and Sir Charles Napier—was sent out. All three of these varieties were certificated at Kensington :—

"'*Ianthe*.—Flowers bluish crimson, the blue predominating in the lower petals; flowers of large size, good shape and substance, quite novel, and very beautiful; habit very dwarf and branching, with handsome dark green zonal foliage; colour of flower unaltered by rain or sun. Altogether the finest variety for bedding ever sent out.'"—(*Florist and Pomologist*, 3s.,v.,49.)

THE ORCHARD WORTH CARE.

It certainly pays to take a little pains with young trees, for what is there that is more remunerative than an Apple crop one year after another? Who among our readers would be willing to take $5 per tree for an orchard of young Apple trees just coming into bearing? We have now an orchard of six hundred Apple trees, covering a lot of 15 acres, that we would not have taken from our grounds for $3,000. Add five years more to them, and one will see what they will add to the land. It is the strangest thing to us to see farmers owning 100 to 200 acres of land, with barely enough Apples to supply the family; or, perhaps, an old orchard of one hundred to one hundred and fifty trees occupying 3 to 4 acres of land, from which they realise more profit than any 20-acre field they have, not planting more Apples, or, after they do plant them, not giving them the proper care. When will farmers see this in its true light?—(*Small Fruit Recorder.*)

THE ROYAL HORTICULTURAL SOCIETY.

March 6th.

There was again a good Show, though scarcely equal to the last, especially as regards the floral subjects for which classes were provided. The Camellias, in particular, by no means came up to our expectations, the plants not being of any considerable size. Messrs. Lane, of Great Berkhampstead, had the first prize for six well-bloomed plants, exhibiting in addition a collection in small pots. In Class 2, for twelve cut blooms, there was no competition; and in Class 3, for six cut blooms, Mr. Potts, gardener to J. Knowles, Esq., Heaton Grange, Bolton, had a first prize for a very good stand. Mr. W. Paul, of Waltham Cross, sent a fine collection of cut blooms not for competition.

There were classes for shrubs in flower, and for Lily of the Valley, but no exhibitor came forward. Of early Grapes there was likewise no exhibition, but of late Grapes some extraordinarily fine bunches were shown, and notably that which gained the first prize. It came from Mr. Potts, gardener to J. Knowles, Esq., Heaton Grange, Bolton, and was Alicante, large in bunch, closely set with full, plump, jet black berries, beautifully covered with bloom. Mr. Sage, gardener to Earl Brownlow, Ashridge, was second with Lady Downe's, very fine; and Mr. Bannerman, gardener to Lord Bagot, Blithfield, third with the same kind, also in excellent condition. Mr. Osborne, Kaye's Nursery, Finchley, sent Alicante, good; Mr. Donaldson, gardener to Lord Chesham, the same kind, very fine; and Mr. Hudson, gardener to J. C. Imthurn, Esq., Champion Hill, Camberwell, some fine Lady Downe's. For Asparagus, Sea-kale, and Rhubarb, one dish of each, Mr. G. T. Miles, gardener to Lord Carrington, Wycombe Abbey, was an easy first with splendid Rhubarb, fine Sea-kale, and large Asparagus. Mr. J. Bray, gardener to W. A. Sanford, Esq., Nynehead, Court, Wellington, was second with good Rhubarb and Sea-kale, and fine Asparagus; and Mr. R. Gilbert, gardener to the Marquis of Exeter, Burghley, was third with fine Sea-kale and good examples of the other two subjects.

Fruit Committee.—G. F. Wilson, Esq., F.R.S., in the chair. Mr. Tegg, gardener to John Walter, Esq., Bearwood, sent specimens of a new white Sprouting Broccoli, which did not receive the approval of the Committee. Mr. Gilbert, of the Gardens, Burghley Park, Stamford, sent specimens of Snow's Winter White, and of Myatt's Cape Broccolis. Messrs. Paul & Sons, Cheshunt, sent examples of a fine stock of Snow's Winter White Broccoli. Sir Walter Trevelyan, Bart., of Nettlecombe, sent dishes of Lemons, Citrons, and Oranges, which were much admired, and received a cultural certificate. Mr. Sage, gardener to Earl Brownlow, Ashridge Park, sent a dish of very fine Keens' Seedling Strawberries, which received a cultural commendation. Mr. F. Dancer, of Chiswick, exhibited a dish of Cox's Orange Pippin in fine condition, and although much beyond the season at which this Apple is usually kept, they were of excellent flavour. They were awarded a cultural certificate.

A pretty little variety of Maize, called Zea gracillima, was exhibited from Mr. Benary, of Erfurt. Two Smooth-leaved Cayenne Pines, weighing 6½ lbs. and 5 lbs. respectively, and produced from a plant not thirteen months old, were exhibited by Mr. Miles, gardener to Lord Carrington, Wycombe Abbey, and received a cultural commendation. Mr. Donaldson, gardener to Lord Chesham, Latimers, sent a very meritorious collection of Grapes, consisting of large and remarkably well-kept bunches of Mrs. Pince, Gros Guillaume, and Alicante, They were awarded a cultural commendation. Mr. Osborne, Kaye's Nursery, Finchley, sent three small but well-kept bunches of Gros Guillaume, and received a cultural commendation.

Floral Committee.—Mr. J. Fraser in the chair. Messrs. Veitch sent a fine collection of Orchids, including a magnificent specimen of Dendrobium Farmeri; a number of plants of Odontoglossum Alexandræ with grand spikes; Epidendrum paniculatum; Odontoglossum triumphans, very fine; O. Andersonianum, cream and brown; the hybrid C. Harrisianum, very fine; and an Oncidium with long twining racemes of large brown and pale yellow flowers. Together with these were several fine Palms, an excellent specimen of Hippeastrum pardinum, and the pretty little Stenogastra concinna. Messrs. Veitch also sent a fine group of Roses in pots.

From Messrs. E. G. Henderson & Son, St. John's Wood, came a good collection of Cyclamen persicum in several varieties, and a new Asplenium.

Mr. Denning, gardener to Lord Londesborough, Grimston Park, Tadcaster, again contributed a beautiful collection of Orchids, particularly noticeable among which were splendid specimens of Cœlogyne cristata, Dendrobium nobile, Cattleya Trianæ, Cymbidium eburneum with five large flowers; Brassavola glauca, Dendrochilum glumaceum, Cypripedium Lowii, very fine, Lycaste Skinneri, and Odontoglossum membranaceum.

Messrs. E. G. Henderson sent a group of Caladium Princess Alexandra, with rose-tinged silvery leaves veined and edged with green. Messrs. Rollisson, Tooting, sent a mixed group, in which were Vandas, a fine specimen of Cypripedium villosum, and several other Orchids; Araucaria Cunninghami glauca, and a pan of Primula nivalis, a charming little white-flowered species. From the same firm came also Calamus verticularis, a handsome Palm, which received a first-class certificate. Mr. Herbst, nurseryman, Richmond, sent two large baskets of Lily of the Valley, beautifully grown and flowered. From Mr. W. Paul Valley, beautifully grown and flowered. From Mr. W. Paul came Waltham White Primula, with very large white flowers of great substance; this we have frequently noticed in terms of high commendation. Messrs. Standish & Co., Ascot, contributed an extensive and beautifully flowered group of Azaleas, Bouvardias, Spiræa japonica, Cinerarias, Hyacinths, cut blooms of Maréchal Niel Rose, &c. Mr. H. Bennett, Manor Farm Nursery, Stapleford, sent several of the new Hybrid Perpetual Roses.

Mr. Williams, Holloway, exhibited among new plants Toxicophlæa Thunbergi, a Natal plant with close heads of white flowers and dull green leathery leaves, also a magnificent specimen of Dendrobium Cambridgeanum, bearing a profusion of its rich yellow and brownish crimson flowers. In the same collection as this were a very fine specimen of Lycaste Skinneri, Tillandsia Lindenii, its deep azure blue flowers more lovely than ever, several Palms, &c. Mr. Williams also exhibited white Chinese Primulas of a fine strain, and some excellent Cyclamens, both in colour and freedom of bloom.

From Mr. Ware, Hale Farm Nurseries, Tottenham, came a charming collection of spring-flowering plants—such as the double white variety of Primula acaulis, Iris reticulata, Scillas, Dog's-tooth Violet, and many other gems.

From Mr. Green, gardener to W. Wilson Saunders, Esq., came a fine variety of Imantophyllum miniatum, called Cooperi, richer in colour and with a finer truss than the ordinary form. Mr. Green also exhibited the little white and pale yellow-flowered Eria obesa. Mr. Masson, gardener to R. Milne, Esq., Viewfield House, Arbroath, sent a magnificent specimen of Phalænopsis Schilleriana, with two branching spikes covered to the height of about 3 feet with beautifully-coloured rosy blossoms, 207 in

number. This splendid object received a well-deserved cultural commendation, and was recommended to the Council as worthy of a medal.

Messrs. Paul & Son sent a collection of cut Roses, and Mr. Meadows a wooden-ended and sided span-roofed hand-light, with sliding panes of glass, hinged so as to fold up.

First-class certificates were given to Messrs. Rollisson for Calamus verticularis; to Mr. Green for Imantophyllum miniatum Cooperi; to Mr. Williams for Toxicophlæa Thunbergi; and to Mr. William Paul for Waltham White Chinese Primula; cultural commendations to Mr. Masson for Phalænopsis Schilleriana; to Messrs. Veitch for Dendrobium Farmeri, for their collection of Orchids, also for their collection of Roses; to Mr. Williams for Dendrobium Cambridgeanum, for his collection of Cyclamens, Chinese Primulas, and group of Orchids; to Mr. Denning for a collection of Orchids; to Messrs. Standish & Co., and Messrs. Rollisson, for groups of plants; to Mr. Ware for spring-flowering plants, &c.; to Mr. Herbst for Lily of the Valley; to Messrs. E. G. Henderson for their collection of Cyclamens; and to Mr. W. Paul for a collection of Camellia blooms.

NOTES ON GRAFTING.

This will require to be done earlier than usual this season, unless the scions are kept dormant in a cool shady place. As a general rule the grafting will be most successful when the growth of the stock is a little in advance of the scion, more especially in the case of Vines. We have grafted successfully when both stock and scion were in a dormant state, but the scions did not take so quickly as when the stock was cut down after being in leaf, and the retarded scion was put on before it showed signs of moving. Of course in Vines, during the free flow of the thin watery sap before the leaves expand, grafting is out of the question. It must be done either when both stock and scion are in the inert state shortly before the sap is expected to move, or after the stock is growing, and the scion still inert, for after the leaves of the stock are near the full size there will be no more bleeding.

The modes of grafting are endless, and there has often been much unnecessary work attendant upon them in the way of notching, tonguing, &c. The most essential point is that the inner bark of the scion should neatly join the inner bark of the stock, and it matters little how this is done provided the scion is kept secure in its place, and the air, which might hinder the free and rapid union, excluded. Many plastic materials are used for this purpose, and are very useful for grafting small plants; but for general purposes, such as fruit trees, I do not think anything better than clay wrought to the consistency of putty and mixed with a little cow dung, the whole being tied over with moss to keep it from cracking. There is no simpler mode than side-grafting—that is, taking a slip 2 or 3 inches long off the stock, a similar slip off the scion, placing them close together, so that the inner bark may join, and tying them securely with matting or woollen thread. When grafting an old Vine stem we have often treated it as we would have done a large stump or branch of an Apple or a Pear—that is, inserted two or three scions round the stem instead of one. This tends to prevent one side of the big stem becoming dormant, and afterwards influencing the free current of the sap. In such cases we have taken out neatly triangular spaces from the stock, and cut the scions in the same shape, so as to fill the space neatly. In this, as well as in all grafting of Vines, we prefer that the base of the scion should be cut across through a bud space, and only one eye or bud should be left above. The space of two nodes is, therefore, wanted for a scion. For young Vines side-grafting is the simplest and easiest. When a change of kind is determined on, grafting gives two chances, as, if a graft fail, you can inarch on the young wood that will come afterwards from the stock as soon as that becomes a little firm.—R. F.

ENTOMOLOGICAL SOCIETY'S MEETING.

The second February meeting was held on the 19th at Burlington House, the recently elected President, Professor Westwood, in the chair. Mr. Frederick Smith stated that his attention had been called to some "silk waste" from Japan in a warehouse in London, which was much infested with mice. He had discovered that the waste silk cocoons contained dead caterpillars and chrysalids of the common Silkworm, upon which they fed. On examining some of the cocoons he had found that they occasionally contained two chrysalids instead of a single one. Mr. Jenner Weir stated that the same fact had been observed in Bombyx lanestris. Professor Westwood observed that the fact of two caterpillars joining to form one enlarged cocoon, instead of each making a single one in proximity with the other, exhibited a peculiarity of instinct similar to that shown by two or more swarms of Wasps uniting to form one gigantic circular nest; and Mr. Smith observed that this had been even done by different colonies of distinct species of Wasps working together, so that the outer covering of the nest showed layers of the different coloured materials used by each species. Mr. Butler exhibited a large grub-like larva, evidently that of an Ichneumon, which had emerged from a caterpillar of the Buff-tip Moth. It had spun a rough cocoon composed of black and white threads.

Dr. Buchanan White made some observations on the habits of a species of black Ant at Capri, confirming Mr. Moggridge's notes communicated to a former meeting of the Society. Their nest was underground, and the seeds which they stored were those of Composite and Leguminous plants. Occasionally several Ants would unite to drag along a single seed. Mr. Horne stated that he had observed a similar fact in the habits of some Indian Ants.

Professor Westwood exhibited type specimens and drawings of the animals from Madagascar upon which Latreille had founded his genus Prosopistome, supposed by that author and M. V. Audouin to belong to the Crustacea; and made some remarks thereon connected with the assertion recently made by Dr. Joly, of Toulouse, that these creatures and "le Binocle" of the neighbourhood of Paris described by Geoffroy are in reality the early stages of a species of Ephemeridæ. He was, however, scarcely able to believe that this assertion was founded on fact, but at present felt indisposed to express any opinion as to their actual affinities, which he did not, however, regard as decidedly crustacean. Mr. McLachlan also expressed a doubt as to the possibility of these creatures being ephemerideous, as they differed so entirely in their essential structure from the well-known characters of all other ephemerideous larvæ. He also exhibited specimens of Boreus californicus of Packard, from North America, a species twice the size of that previously described. Mr. Dunning announced the recent decease of J. C. Dale, Esq., one of the oldest British entomologists.

Mr. Miller read some remarks concerning the habits of certain gall-producing Sawflies of Salix fragilis, which are said to avoid those portions of the tree which overhang water. Count Osten Sacken had also observed in North America that the branches of stone-fruit trees over water were free from the attacks of insects; and Mr. Miller hence suggested a practical application in order to save choice fruit trees from the attacks of insects, by surrounding them at the base with glass, which, it is well known, is often mistaken by insects for water.

Training the Chinese Wistaria in a New Style.—Florists have discovered a process to make this plant grow in tree form so as to support itself. A young plant is first trained to a stake 6 feet high. When it reaches the top it is headed-off. The second year, or as soon as it is stiff enough, the stake may be taken away, and the young plant will support itself. It will never make running branches after this. A beautiful umbrella head is formed, with hundreds of drooping flowers in spring.

KEEPING GRAPES IN BOTTLES OF WATER.

The Grape-room at Aswarby Park is on the second floor from the ground, with an aspect to the north unvisited by the sun's rays, and possessing great dryness on account of its elevated position. I find that there are three great evils to be guarded against, and these are damp, frost, and artificial heat. My room is 21 feet long, 16 wide, and 7 feet 6 inches high, with the two outer walls looking respectively towards the north and the east. The walls are thoroughly plastered, as is also the ceiling, the latter three coats deep, and the floor consists of composition. Clean dry sawdust is strewn on the floor, and likewise on the top of the ceiling between the rafters, being intended in the latter case to keep out the frost. Two opening windows look towards the north, and are each fitted on the inside with shutters, which should be closed in severe weather, and the space between them and the window padded with any clean dry material. The door is single, and on the south side, but it can be converted into a double door when required, and the space between closely padded, as in the case of the windows. Thus the room is almost air-tight in frosty weather. All ventilation is effected by means of the door and the windows; and as fresh air, with a good amount of light, is required at all times, I open them whenever the weather permits. Should the day be damp and cloudy, or the wind in the north, I do not open the room, but otherwise I never lose a chance of admitting light and air, if only for half an hour. On the 8th of December, when we had 20° of frost, the temperature in the room did not fall below 38°, and this was with-

out the aid of artificial heat. As a rule, the temperature is nearly 48 , and this can with careful attention be maintained for weeks without artificial means.

At each end of the room are arranged fruit-shelves for the best varieties of dessert Pears and Apples, whilst the centre of the room is devoted to the keeping of Grapes. We have here eight standards, 6½ feet high and 2 inches square, into two sides of which are let, alternately, brackets 1½ inch thick, and which, after being thus fixed, measure 4½ by 3½. Four of these standards are placed on each side of the room, leaving a passage-way all round them. The bottle-receptacles are then laid on the brackets, so as to rest perfectly flat, and are made fast with one screw-nail driven through the under side of the bracket into the under side of the bottle-receptacle. A light facing of wood fitted on the front of the standard rests upon the receptacle, and fits under each bracket, thus preventing the receptacle from rising up behind, and giving the whole a neat and finished appearance. Each pair of standards has seven 10-feet lengths of bottle-receptacles, four on one side and three on the other, each length holding eleven bottles, so that each pair of standards carries seventy-seven bottles; it has also an iron spike in the top. There are two laths of wood along the top of the standards, with holes in them at the same distance as that at which the standards are placed, and bound together by means of an iron spike, which passes through the holes. *Fig.* 1 shows the standard. *Fig.* 2 shows the top of the bottle-receptacle. *Fig.* 3 gives a full-sized sectional view of the receptacle containing the bottle.

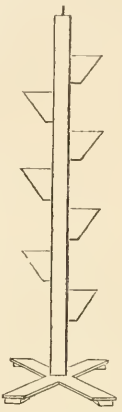


Fig. 1.

I have tried many different mixtures for filling the bottles, but I find there is none equal to charcoal and pure rain water, room, the use of sealing-wax or any other material is dispensed with, as the shoot becomes perfectly hard and dry, and will neither take in nor give off moisture.

I have the bottles prepared beforehand, and after cutting the shoots off at the second eye beneath the bunch, if possible, I carry the bunches, with all the green foliage untouched, to the storing room, and place them in their respective positions. This foliage should be allowed to die-off of its own accord, after which it must be carefully removed.

When I have put the first lot past I go to the vinery and make another selection, to come in at the proper time. Although this may seem a slow process to some, I am, nevertheless, perfectly satisfied in my own mind that it answers better in the end. The foliage was nearly all gone from the Lady Downe's when I cut them, but this autumn I intend to select them in the same way as I did the Muscats.

I think the time is not far distant when Grape-rooms will be as common as our fruit-rooms, and answer the end in view just as well, provided they are carefully attended to, for without this Grapes will not keep four or five months.—Richard Nisbet, *Aswarby Park Gardens, Falkingham.*

P.S.—The Muscat Vines were started on the 7th of March, Lady Downe's on the 27th of March, 1871. The bottles are all stoppered with wadding, as in *fig.* 3.

I have practised this plan for three years; I let the Grapes hang upon the Vines as long as possible, but never late upon one Vine two years consecutively. A Vine that carries fruit late one year is one of the first to have its fruit cut in the following season; thus the Vines have a rest every alternate year. Of course there are cases where it is desirable to cut the whole of the Grapes early, as where the house is required for plants, but this is done at the expense of flavour. If they are required so late as March or April, I think Grapes should not be cut sooner than the end of January, for they will not keep long with the ends of the shoots in water without loss of flavour.

On February 10th, 1871, I cut the last bunches of Alicante that ripened the preceding August. The ends of the shoots

Fig. 2.

close to which the stalk of the bunch of Grapes is placed, as shown in *fig.* 3. The Grapes should be cut as they ripen, and not taken off all at once irrespective of their exact condition. Ten or twelve days before I cut any bunches I went over all the

Fig. 3.

Vines in the Muscat house, trained on the extension system, the foliage of which was at that time perfectly green and healthy. From these I selected from forty to fifty ripe bunches, the shoots of which I shortened to two eyes above the bunch, at the same time letting remain what small laterals there were attached to these eyes. By thus cutting back the shoots ten or twelve days before taking the bunches to the were put in bottles filled with rain water, with a few pieces of charcoal added; the mouths of the bottles were then sealed up. The bottles were placed in a dry room, where the temperature ranged from 35° to 45°, the light was not excluded, and due regard was paid to ventilation. In this way the Grapes kept in fine condition until the end of April—no berries burst. After April 30th the footstalks began to shrivel, and the berries to shrink a little. I cut the last on May 12th, and the first new Grapes the same day, and though the old Grapes had been ripe nine months—six on the Vine and three in bottles, they were nearly as handsome as the new ones. There was an evident loss of flavour the last few weeks.

In reference to the Grapes that burst at Belton, may they not have been cut too soon, while the sap of the Vine was still active? It seems probable, if the shoots were put into water in that state, that they would have the power to take up moisture to such an extent as to burst the berries.—John Potts, *The Gardens, Heaton Grange, Bolton.*

BEAUCARNEA RECURVATA.

The subject of the illustration, Beaucarnea recurvata, sometimes known also by the name of B. tuberculata, is at once graceful and exceedingly ornamental. The genus Beaucarnea is of somewhat recent introduction, and belongs to the order Liliaceæ. At present there are but few species known, but those with which we are acquainted are all natives of the temperate regions of Mexico. Beaucarneas are remarkable for the bulb-like swelling at the base, and an arborescent stem. The swollen base in the species we here figure is nearly smooth, but in some others it becomes rough and woody, resembling somewhat the Elephant's-foot plant (Testudinaria elephantipes) of the Cape of Good Hope.

As an ornament to the conservatory, for giving a tropical effect to the out-door garden during the summer, or for hall decoration either in summer or winter, there are few plants to excel Beaucarnea recurvata, its ample spreading head of long

drooping dark green leaves affording a contrast which we seek in vain in any other plant. It is frequently remarked by both amateurs and gardeners that Beaucarneas have a grotesque but not an ornamental appearance. That such should be the case, however, is entirely the fault of the cultivation. Treat them liberally, and an ornamental, graceful, spreading crown of leaves will be developed; starve them, and they become simply ugly. This peculiarity is not confined to the genus

Beaucarnea recurvata.

Beaucarnea, but applies more or less strictly to nearly all the plants we have in cultivation; the fault lies mostly in their wants and requirements being very imperfectly understood, and their rarity and consequent high money value has prevented their owners from experimenting much with them.

I have had a great number of these plants under my care both in a large state and as seedlings; I shall therefore conclude these remarks with a brief summary of my mode of management, which has been very successful. I find that even in quite a young state, say when only a few months old, the plants begin to assume the bulb-like character at the base; but I am not able to arrive at any satisfactory conclusion as to

how long it takes to form such a plant as that represented, but I should imagine it would be about fifteen years from seed, providing the plant received uniformly liberal treatment. The soil should be rich fibrous loam, with a liberal admixture of sharp river or silver sand. Special attention must be paid to the drainage, which must at all times be in perfect order. The treatment for old plants should be during the summer, if standing in the conservatory, full exposure to the sun, and an abundance of water. I repeat the words, an abundance of water, for the plants may be almost kept with their roots in the water and their heads in the oven. As autumn comes on, gradually withhold water until, upon the setting-in of winter, you may entirely stop the supply, and keep the plants quite dry until the sunny days of spring again set them in motion. I prefer growing young seedlings in more heat, and not drying them quite so much until they get a few years old, when they may be placed upon the same footing as their elder relatives. —Experto Crede.

We are indebted to Mr. B. S. Williams, of the Victoria Nursery, Upper Holloway, for the illustration here given, the drawing for which was taken from amongst a great number of this class of plants which may be found in that establishment. —Eds.]

A USEFUL GREENHOUSE.

As almost everyone who can afford it now erects a greenhouse it may, perhaps, interest some of those who are about to build one, to hear the description of a greenhouse erected many years ago by a neighbour of mine, and which always seemed to me to give the greatest possible amount of enjoyment which a single structure can yield.

The house is a long lean-to with a south aspect. The monotony of such a construction is broken by a large bow thrown out at the centre, and from this bow a pent roof is carried to the back wall, thus forming a centre transept. Against the back wall there is a narrow border, in which are planted Camellias. These are trained to a trellis affixed to the wall. In the front of the house there runs a narrow shelf where bedding plants are wintered securely. Underneath this shelf are the hot-water pipes.

The area of the house is filled by two stages, which do not join, but leave the centre transept free, and leave also a roomy walk both at the front and at the back of the house. These stages are of only two or three tiers, and do not exceed 4 or 4½ feet in height, so that they do not take away from a person standing in front the view of the back wall. They are filled in spring with Hyacinths, Polyanthus Narcissus, and the like. In summer they might be employed in flowering Japan Lilies, Ismene calathina, &c. In autumn Chrysanthemums would create another summer. This year, even in an unheated orchard house, some few Chrysanthemums were still in flower at the beginning of February, until, one fine sunshiny morning, the lovely Iris reticulata suddenly burst into bloom, and told us that another year had indeed arrived.

In the bow already described, and between the two stages, were tall plants of Camellia in pots. The roof was covered with Vines planted in an outside border. The shade of these when in leaf was beneficial to the Camellias against the back wall, and in summer this shade was increased by tiffany stretched underneath the Vines. How this was removed when the Vines were attended to I do not know. In bad seasons sufficient heat was put on to ripen the Grapes in September, so that all, or the greater part, might be cut by the middle of October, when the bedding plants were brought in. The fruit would be kept some further time after its removal from the Vine.

From the above description it will be seen how much enjoyment the house afforded to a lover both of flowers and of fruit. But there remains one other pleasure, which to an invalid is most grateful—namely, sufficient length of walk where exercise may be taken in all weathers. I find an orchard house 50 feet long ample for this purpose; but the full amount of enjoyment can be obtained only when the greenhouse can be entered from the dwelling-house without the necessity of passing through the open air. In this one point my friend's structure was defective.—G. S.

Mr. William Paul, The Nurseries, Waltham Cross, gave a dinner of roast beef and plum pudding on Thanksgiving-day at which about fifty of his *employés* sat down, one of the greenhouses being fitted up for the occasion. After the usual loyal manifestations, the party adjourned to a large meadow adjoining the nurseries, where a huge bonfire was lighted, accompanied by a grand display of fireworks. The seed warehouse and offices were illuminated, the letters V. R. being placed on either side of the Royal arms, over which a crown was placed. Fully three thousand persons witnessed the display, and were freely admitted to the grounds.

ON THE INFLUENCE OF LIGHT UPON PLANTS AND ANIMALS.

By Cuthbert W. Johnson, F.R.S.

That light materially influences the growth and the colour of plants was an early observation of the cultivator. That they lost their colour when grown in the dark, that they extended themselves towards any opening of the opaque covering in which they were confined, could not long escape the gardener's observation. It was a much later remark that light influenced the health and the growth of animals, and a still later discovery that light was composed of seven different rays, and that these rays possessed different chemical properties.

Some recent observations of the effect upon the growth of the Vine by the violet ray add additional interest to our stock of knowledge as to the influence of light on the vegetable world. I allude to the report by the American General Pleasanton "On the Influence of the Blue Colour of the Sky in Developing Vegetable and Animal Life." His experiments originated from a conviction that the blue colour of the sky must have a very great influence upon the prosperity of plants and animals. "With this idea dominent in his mind," observes the able editor of the *Gardeners' Chronicle* (vol. 1872, page 175), "the General in 1860 erected a vinery; this was finished in March, 1861. It was a span-roofed house, 84 feet by 26, and 16 feet high, having an aspect nearly north and south. The borders outside and inside were of the ordinary composition, and 3 feet 6 inches deep. The roof was glazed with a row of violet-coloured panes between every six rows of ordinary glass, and these were made to alternate in position with those on the opposite side, so that the sun in its daily course threw violet light successively on all the leaves exposed to its influence. Cuttings of twenty varieties were planted in April, 1861. Their growth speedily commenced, and proceeded with a degree of vigour that excited very naturally the astonishment of the beholders, since the gardener had every day to tie up the new wood, which was not in existence the previous day. In September, 1861, some of the rods were 45 feet in length, and 1 inch in diameter at 1 foot from the ground! In January, 1862, they were pruned, and in March they began to push, and in the development of foliage, wood, and bunches they outdid their former year's growth. In September the weight of the Grapes was estimated by Mr. R. Buist, a well-known nurseryman, to be equal to 1200 lbs., from Vines, be it remembered, only seventeen months old. In 1863 the Vines yielded a crop estimated at two tons! And what is equally surprising, from year to year the Vines have continued to yield splendid crops without intermission, and are now in robust health."

These important researches, the report of which has attracted the attention of the Agricultural Society of Philadelphia and the Academy of Sciences at Paris, are too interesting to need any commendation of mine to the reader's attention. It is true that they present some startling facts, but then we must remember that we have long been aware of other phenomena with regard to the action of light on plants and animals equally difficult to explain. Thus, with regard to the action of light upon animals, why do the box, cellar, or stable-fed cows of London become diseased, though fed on the most nutritious and abundant food? Are they not kept in darkness? It is true that animals secluded from light fatten faster than those in the light, but there is no doubt but that their health suffers. The material effect of light upon animals is but imperfectly understood; yet there is no doubt that the brilliancy of the plumage of the birds and insects of warm climates is chiefly attributable to the intensity of the light to which they are exposed. In our own country, without light, the common cockroach, reared in the dark, becomes nearly colourless; tadpoles remain tadpoles. On the other hand, observes Dr. W. B. Carpenter (*Physiology*, page 54), the more the body is exposed to the influence of light, the more freedom do we find from irregular action or conformation. He instances the ill effects of the absence of light on certain wards of the hospitals, both in London and on the continent; and the absence

of all natural deformity in the natives of South America, who do not wear any clothing. In the experiments of General Pleasanton on some pigs and a calf, he thought that a decided advantage was derived from placing them under the influence of the blue ray. Then when we long since examined the action of light upon plants, we were met with many facts which excited our curiosity and anxiety for more knowledge than we possessed. As my brother, Mr. George W. Johnson, remarks (*Principles of Gardening*, page 252), plants are obviously stimulated by light. Everyone must have observed that they bend towards the point whence its brightest influence proceeds. M. Bonnet, the French botanist, demonstrated this by some very satisfactory experiments, in which plants growing in a dark cellar all extended themselves towards the same small orifice admitting a few illuminating rays. Almost every flower has a particular degree of light requisite for its full expansion. The blossoms of the Pea and other papilionaceous plants spread out their wings in fine weather to admit the solar rays, and again close them at the approach of night. Plants requiring powerful stimulants do not expand their flowers until noon, whilst some would be destroyed if compelled to open in the meridian sun. Of such is the Night-blooming Cereus, the flowers of which speedily droop, even if exposed to the blaze of light attendant on Indian festivities.

Then, again, light not only exerts a chemical action on plants, but it would seem that some of them appear to absorb it, or at any rate they emit it. This light, which plants and certain animals diffuse, has been the source of much discussion. That it is emitted from some insects—from decaying wood or fish, and even when pieces of lump sugar are rubbed together in the dark—is too well known to be denied; but that certain plants are also occasionally luminous in the dark has been disputed. The plants from which light has been emitted are the flower of the African Marigold, the Orange Lily, Nasturtium, the scarlet Verbena, and even from some of the Lichens. The emission of light from plants has been denied chiefly on account of the difficulty of explaining the fact. That objection, however, applies to the glow-worm of our hedges, to the meteorolites which are gliding through the atmosphere, and even to the summer or sheet lightning flashing around our horizon.

We have seen the effect of light upon Vine cuttings reported by General Pleasanton, and this is not the earliest evidence in our possession, for the action of light upon cuttings, as Dr. Lindley long since concluded, is hardly inferior to that of heat (*Theory of Horticulture*, p. 291). The moment light strikes a green plant it excites perspiration; and that the influence of different coloured rays of light upon plants is varied appears from other evidence than that of the American General. Thus, the Ferns at Kew placed under green glass by Dr. Hooker flourish with unusual luxuriance.

Although, as I before remarked, it is a modern discovery that the different coloured rays of light produce different chemical effects upon plants, that white light does so has been long known. The gardener is well aware how in its absence his vegetables become more watery. The chemist long since discovered that plants in the light emit oxygen and absorb carbonic acid gas, and so purify the air, which is corrupted by the breathing of animals, since animals absorb oxygen and emit carbonic acid gas. The keepers of aquariums are aware of this—they are careful to preserve a due proportion in these between the fish and the aquatic plants with which they tenant them. Plants, however, which are placed in sleeping-rooms rather tend to render it less wholesome, since they in the dark inhale the same oxygen gas as ourselves. These facts did not escape the notice of the celebrated chemist Davy, for in one of his works he remarks: "It may be said that, if in summer the leaves of plants purify the atmosphere, towards the end of autumn and through the winter and early spring the air in our climate must become impure, the oxygen in it diminish, and the carbonic acid gas increase; which is not the case. But there is a very satisfactory answer to this objection: in our winter, the south-west gales convey air which has been purified by the vast forests and Savannas of South America; and thus those events which the superstitious formerly referred to the wrath of Heaven, or the agency of evil spirits, and in which they saw only disorder and confusion, are demonstrated by science to be ministrations of Divine intelligence, and connected with the order and harmony of our system."

Prolific Hyacinth Bulb.—I have a very singular specimen of Charles Dickens Hyacinth, now in bloom. It has four distinct spikes, each about 8 or 10 inches long, full of flower, and all springing from the crown, not from offshoots. Each spike bears as many bells as an ordinary Hyacinth with a single spike. It is grown in a pot, in loam, &c. The bulb is of ordinary size.—C. W.

WHO RAISED THE RIBSTON PIPPIN?

"A Hull correspondent sends the following:—On the 1st of September, 1693, in the fifth year of King William and Queen Mary, Robert Clemesha, of Goldsborough, brought his son Robert to be bound apprentice to the Honourable Robert Ryerby, of Mettridge Grange, in the county of Durham, as a gardener. His master covenants to find him sufficient meat, drink, clothes, lodgings, and washing suitable for an apprentice. When bound he signs with a cross, not being able to write. The Honourable R. Ryerby had land near Goldsborough—I know from receipts for rent in my possession. Perhaps he lived at Ribston Park. In after-life Robert Clemesha was gardener there. He had given him the pip of an Apple brought from France, which he was desired to endeavour to cultivate. This he succeeded in doing, and the fruit was much approved and takes the name of Ribston Pippin, from the locality where it was first raised. The tree died in 1840. The indenture in my possession was ready to drop in pieces, so I had to glue it to cartridge paper, and have presented it to the Hull Philosophical Society, in whose museum it is now deposited."—(*Richmond and Skipton Chronicle.*)

[The indenture proves that Robert Clemesha was apprenticed to a gardener, and he may have held that office at Ribston Park, but what authority is there to show that he raised the Ribston Pippin? There are other claimants of the parentage of that excellent Apple. We quote the following from Dr. Hogg's "British Pomology:"—

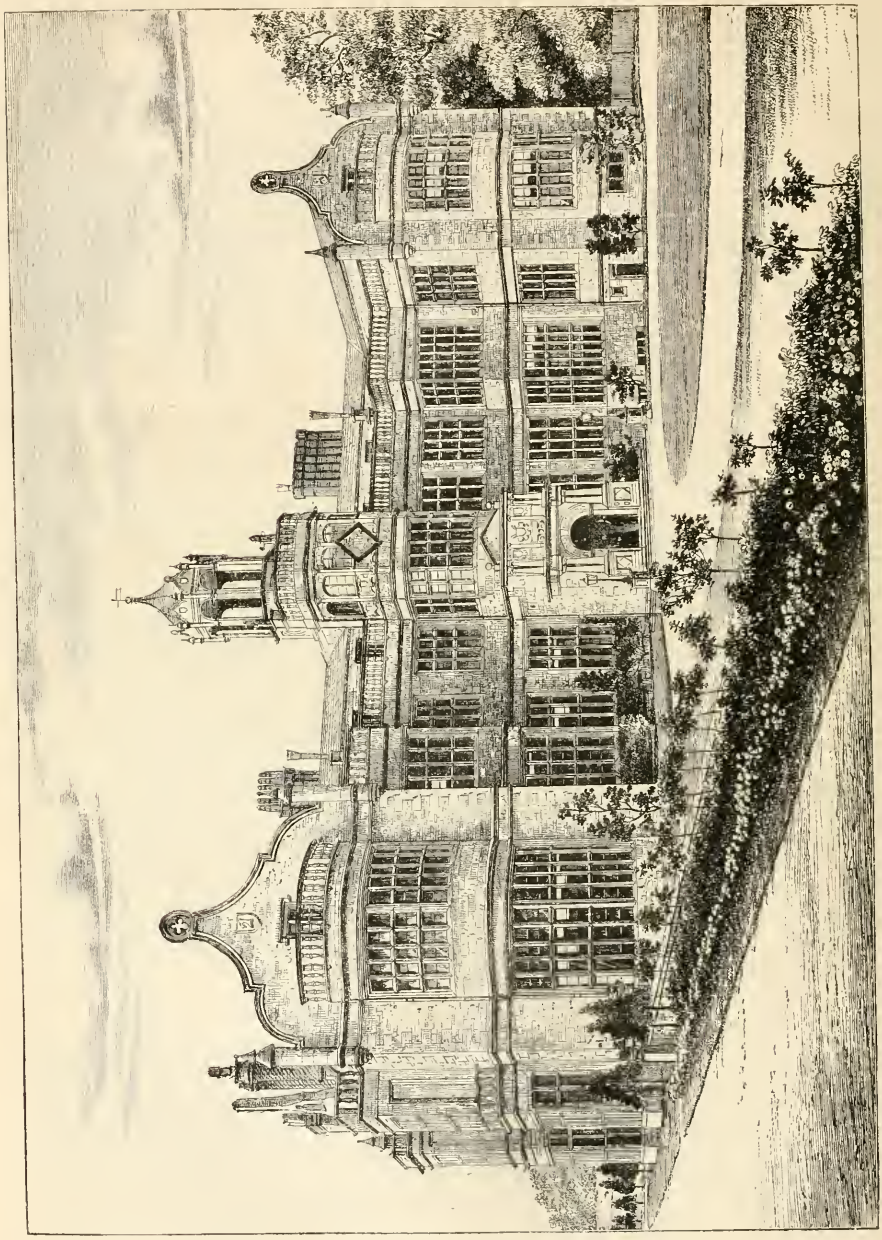
"It is not mentioned in any of the editions of 'Miller's Dictionary,' or by any other author of that period; neither was it grown in the Brompton Park Nursery in 1770. In 1785 I find it was grown to the extent of a quarter of a row, or about twenty-five plants; and as this supply seems to have sufficed for three years' demand, its merits must have been but little known. In 1788 it extended to one row, or about one hundred plants, and three years later to two rows; from 1791 it increased one row annually, till 1794, when it reached five rows. From these facts we may pretty well learn the rise and progress of its popularity. It is now [1851] in the same nursery cultivated to the extent of about twenty-five rows, or 2500 plants annually.

"The original tree was first discovered growing in the garden at Ribston Hall, near Knaresborough, but how, when, or by what means it came there, has not been satisfactorily ascertained. One account states that about the year 1688, some Apple pips were brought from Rouen, and sown at Ribston Hall, near Knaresborough; the trees then produced from them were planted in the park, and one turned out to be the variety in question. The original tree stood till 1810, when it was blown down by a violent gale of wind. It was afterwards supported by stakes in a horizontal position, and continued to produce fruit till it lingered and died in 1835. Since then a young shoot has been produced about 4 inches below the surface of the ground, which, with proper care, may become a tree, and thereby preserve the original of this favourite old dessert Apple. The gardener at Ribston Hall, by whom this Apple was raised, was the father of Lowe, who during the last century was the fruit-tree nurseryman at Hampton Wick."]

INGESTRIE HALL,

The Seat of the Earl of Shrewsbury.

Bright rapidly-flowing streams of water bear about them a charm to which the most stolid and careless observer cannot be altogether insensible; and as in these gross manufacturing days clear waters are rapidly becoming more rare, it is with a feeling of satisfaction that one first gazes upon the Trent in the neighbourhood of Ingestrie Hall. Rising in the highlands of the northern part of Staffordshire it passes through the county in nearly a south-easterly direction until it reaches Rugeley, where it turns more to the north-east, and enters the adjoining county of Derby. Shortly after leaving Stoke it enters the broad valley that bears its name. The Trent Valley is remarkable for the richness of its meadows, which in some places are barely elevated above the range of the floods, and therefore have very large breadths often submerged at the time when these prevail; in fact, the whole of the level land



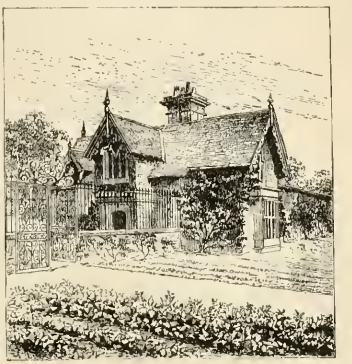
Ingrestrie Hall.

on both sides of the banks has no doubt arisen from an alluvial deposit, and it now forms some of the best land in the kingdom. The scenery, however, is neither bold nor varied, and the traveller in passing through it sees nothing near hand to vary to any considerable extent the tameness of the prospect, as the rising ground on each side is too far off to be seen to advantage. But if he were able to examine the country more leisurely he would see that there is much to admire, and would learn that a well-directed industry has been at work in times past as well as at the present. When "Domesday Book" was compiled in the year 1081, this Staffordshire district was justly known as *Gestreon*, the Anglo-Saxon for production and riches. The district was granted by William the Conqueror to his follower Robert de Tocin, a relative of, if not himself, the Royal standard-bearer of that name. The King conferred upon him, also, the great barony of Stafford, and Gestreon was a part of its vast domains. Probably by marriage and without intermediate possessors it passed to the Mutton family, Eudo de Mutton being Lord of Ingestrie, or Ingestren, as it was then called, in the reign of Henry II. Eudo gave lands in Ingestre to St. Thomas the Martyr Priory, then recently founded at Stafford, became one of its lay brothers, and left the remainder of his estates to his son, Sir Ralph de Mutton, whose daughter and sole heiress married to Sir Philip de Chetwynd. In the possession of their descendants it has ever since remained.

Ingestrie Hall is situated on the right bank of the Trent, nearly in the centre of the county, a few miles from the county town of Stafford, but nearer to the railway station Colwick. Its position is near the base of the sloping ground which forms the right bank of the valley, the mansion being somewhat elevated above the valley, though it is questionable if it would not have been better still higher up. The ground slopes away from it on the east and north sides, while it rises to the south. The approach is by the east, the offices are attached to the north side, and the dressed grounds surround both the others. On the western side is a large Italian garden, and to the south are the pleasure grounds, which rise gently until they blend in a wood. The kitchen garden is to the north of the offices; and in the same direction is the church of Ingestrie, which had its origin as far back as the time when most dwellings of importance had their chapel. The mansion is built in the Tudor style, a combination of brick and stone, the latter forming the window mullions and dressings, the other the body of the work. The interior of the house has undergone much alteration, but its noble exterior is perfectly in keeping with the ample proportions of its principal apartments, and the general comfort that reigns within. It is large and commodious throughout, and although ancient, both the stonework and brick seem to have stood the test of time much better than many more recent buildings.

The park, also, which surrounds this noble abode is of proportionate size, and well studded with noble trees. The rising ground on the southern edge is crowned with timber, but the view in that direction is restricted. Eastward, however, the eye can range over the beautiful valley of the Trent, overlooking Shugborough Hall, which, hidden by the surrounding trees, stands at but a short distance off. The offices, although adjoining the mansion, are, nevertheless, effectually screened by Limes and other trees. The more open lawn to the south of the mansion is dotted with choice Conifers, amongst which are some fine Deodars and one or two excellent Araucarias. We hardly expected to meet with such a fine specimen in the centre of England, as we did here, so many having succumbed to the hard frost of 1866–67 in the southern counties, but here it was, and in good condition too. There were also other Conifers, for which the gently sloping lawn, running up to where it joined the wood, afforded some good sites, whilst here and there a group of Rhododendrons presented themselves, consisting of huge bushes 10 and 12 feet high, and in the most luxuriant health. A wirework fence ran between the lawn and the wood to exclude game, but it did not become visible until you were close upon it, and the dressed grounds, therefore, appeared to merge gradually into the wild. Immediately adjoining the house is the Italian garden. The gardener's house* represents the period in which the mansion was built, and is remarkable for its simplicity and plainness. The beds were mostly straight, and all Box-edged, with gravel paths of ample width between. Each bed was planted with Geraniums, Petunias, and Verbenas, all of which were doing well, and showing signs of careful attention.

We now come to the kitchen garden, which is exceedingly well represented at Ingestric. It lies to the north of the offices, as well as of the main building and the church. This last is not a stone's throw from the house, and we had only time to glance at it on our way to the garden. The garden is large, nearly level, and subdivided by a number of excellent brick walls, the slips being surrounded with ornamental Yew hedges. The various breadths of Broccoli, Celery, Carrots, and the presence of other crops, attested the wants of a large family. One or two rows of dwarf-trained Pear trees were loaded with fruit in a most unusual manner, considering the adverse season, and a still more pleasing sight was a wall of great height covered with healthy Apricot trees well laden with fruit. In the glass



Gardener's Lodge, Ingestrie.

houses, however, a still greater surprise awaited us. Excellent Grapes in bunches as large as is generally seen at most shows, and with good-sized berries, formed the general produce of the Vines. On making some inquiries about them we found the following kinds were very good indeed:—

Madresfield Court.—Very fine black Grape, large in bunch and well coloured.

Alicante.—Some excellent examples, but at the time of our visit (mid-August) not quite ripe. We were told it kept well.

Barbarossa [Gros Guillaume].—A noble Grape in very large bunches, but we were told it did not colour well.

Trebbiano.—Large, white. As this has generally a large bunch, even where such as Alicante are only medium-sized, it might be expected to be good here, and such it was.

Muscat Hamburgh.—Also good and promising.

White Tokay.—Not by any means a well-known Grape, and one we should have passed by without taking any especial notice, but we were told it was an excellent keeper—a qualification in a white Grape not by any means to be disregarded.

Black Hamburgh were good, and present at every corner.

Of Grapes which had been tried and found wanting were Golden Champion, Royal Ascot, and Duchess of Buccleuch.

These fine Grapes were grown to a great extent in virgin loam, the fine turfy soil of the rich meadow around furnishing nearly all that is used for making Vine borders. Some that was being prepared to remake the Vine border then on hand showed the character of the mould at view. It is an open soil of a dark brown colour, sufficiently charged with sand to prevent its holding water, while the roots of the grass and other herbage have united it into so closely-interwoven a mass, that a piece 4 inches or more thick might be beaten some time ere it fell to pieces or yielded any of its finer particles. It would be hopeless to try to imitate such a soil by any artificial mixture. Here Nature has done it, but only after thousands of years. The sandstone rock which bounds the valley has by degrees become disintegrated, and the particles mixing with the other sediment of the river, have formed a substance which seems all that is required for growing good Grapes. It would be difficult to find better fruit; and although the soil had, no doubt, much to do with the result, it is at the same time fair to state that

* The illustrations which we give are from photographs by Mr. Lapworth, of Stafford.

cultivation had also done its part, for everything was in the best possible condition. There was healthy foliage, an absence of insects, and all the other requirements that tend to success. All the contents of the house—Peaches, Figs, and other fruits, showed the same masterly care, without which it is hopeless to look for success, even where such an important element towards it as good soil exists. Other things were also good, including some fine specimen plants of the popular show kinds, as well as Ferns; but there was not time to examine all. In passing we noticed the front of Mr. Phipp's cottage, which is conveniently placed in the garden, covered from the ground to the eaves with the flowers of a fine purple Clematis, which formed a perfect sheet of colour, and was so thick that there was scarcely space to lay one's hand. I do not know the variety, but it was either C. Jackmanii or one resembling it. I had never seen so fine a display before, but most, if not all, the plants in the garden presented the same luxuriant growth. Vegetable crops, as well as flower-beds and forest trees, alike exhibiting that vigour which is the best token that a good and generous soil with skilful cultivation were combined in the result. One of these alone could hardly have accomplished it, and that both were forthcoming at Ingestrie is due to the fortuitous circumstance of Nature supplying the one, and to Mr. Phipps's skill furnishing the other.—J. Robson.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Proceed with sowing all kinds of seeds as directed last week. The ground is in excellent order for planting and digging, which should be finished without delay. Top-dress the beds of *Asparagus*: take care not to injure the plants with the rake or fork. A little *Celery* or *Lettuce* seed may be sown over the beds. New plantations may be made. *Beet* may now be sown in drills a foot apart. Sow seed of the Early Cape *Broccoli* and Cauliflower Broccoli in a frame, to bring them on as much as possible; also sow some in open rich ground. Plant out the autumn-sown *Cabbage*; clear up the leaves, and weed beds left for Coleworts. Sow *Capsicums* on a hotbed. Stir the soil round *Cauliflowers* under hand-glasses, and earth them up; supply them with manure water. Prepare *Carrot*, *Onion*, and *Parsnip* ground, and sow a good breadth as soon as the soil is quite dry. Charred materials, or any old compost sown in the drills or on the bed, will bring the young plants on quicker. Follow up successional sowings of *Peas* and *Beans*. Occasionally water the early slopes of Horn *Carrots* and *Radishes* with tepid water, and cover them up while the sun is shining on them before 3 P.M. Plant the principal early crop of *Potatoes* while the ground continues in good working order. Place hillocks of old tan over *Sea-kale* crowns to blanch the shoots.

FRUIT GARDEN.

Protect the blossoms of Apricots, Peaches, and Nectarines. Straw ropes, mats, canvas, bunting, fir boughs, and fronds of Ferns are all useful for this purpose. As soon as you have finished nailing the Peach trees mix sulphur and soap water to the thickness of paint, and draw a band of the mixture between the shoots in all directions; this once done, and that well, will secure the trees thoroughly from red spider for twelve months. Proceed with grafting, following in the order in which the buds break. Strawberries may still be moved, if with balls, and well watered in.

FLOWER GARDEN.

Attend to the top-dressing and pruning of Roses. Prepare a scheme of planting the beds in the flower garden, and estimate the number of plants required, in order to propagate stock without delay. Dress, where bulbs are coming through, with care, and plant out autumn-sown annuals. Those who plant old roots of Dahlias—they are superior to young cuttings for general display, if properly staked out—may put them in shortly, soiling them over 4 inches deep to secure them from frost. Plant Lily of the Valley where requisite. Plant out Pansies and Carnations, sow Wind Anemone for autumn flowering, and attend carefully to the sowing of showy annuals, placing inverted pots over the patches, if the species or variety is shy or liable to be devoured. Do not forget Mignonette and Sweet Peas. Roll lawns. The pans or boxes in which Ranunculus seed is sown should be protected from excessive rain and frost. A cool frame is the best situation for them until they are well up. The best beds should be planted without delay, taking advantage of the first favourable opportunity; avoid wet weather. Pinks, when intended to be grown in pots, may be put in half-pecks as soon as convenient. I would advise florists generally to give this system a trial; when intended for exhibition they will be found much more convenient to shade or bring forward as circumstances may require. Should canker appear in the collection of Tulips, immediate attention must be paid to them, removing the soil from the diseased parts, and cutting over as occasion may require. Cover on frosty nights, and if possible do not let water lodge in the hearts of the plants. Auriculas and Polyanthuses in frames will require a more regular supply of water. Top-dress with rich soil if not previously done, but liquid manure not too strong will be found far better.

GREENHOUSE AND CONSERVATORY.

Potting must forthwith commence, and be continued with scarcely any interruption until next October, indeed it may be said never to totally cease. Those who have not secured the necessary compost under cover should do so immediately. March offers many opportunities for housing turfy or other composts in a mellow state. Remember that there is, and can be, no period assigned for a general shifting, although such ideas prevailed in former days. Forty years ago the man who did not top-dress all his greenhouse plants in the course of February was considered a great sloven; now, however, there is much less of this top-dressing, and plants are shifted by good cultivators according to their habits and the purpose for which they are intended. Let me here point out what appear to be frequent erroneous practices—namely, overpotting, or potting in composts that are too rich, plants which naturally run too much to leaf. It is obvious that such plants as Veronica speciosa will not bear the application of such stimulating composts as Thunbergia alata, nor should they be suddenly indulged with liberal pot room. The plant would indeed be covered with the most luxuriant foliage, but the blossoms would be few, and produced late in the season. For plants of such gross habit simple loamy soils will in general be found quite rich enough without the addition of vegetable matters. Manures are quite out of the question. The Camellias intended for flowering late in the autumn should now be forced into wood under a temperature of from 60° to 65°. Shade is necessary while they are making their young wood. Those exhausted with flowering should be cut back and removed to a cool greenhouse for three weeks, giving them a little liquid manure. The same practice may be adopted with the Indian Azaleas. If forced into wood now they will bloom in the course of November and December. The Citrus tribe may be pushed forward in bottom heat where size is an object; if any are sickly and in a bad state at the roots, cut them back, disroot them, washing the roots, and place them in smaller pots, using turfy loam, leaf soil, sand, and charcoal, afterwards plunging them in bottom heat in a moist atmosphere. See to regularly shifting Cinerarias, Pelargoniums, Calceolarias, and Fuchsias. Propagate plants for the flower garden. Root-propagation may be resorted to with plants in a dormant state. Sow exotic seeds, and cover each pot with sphagnum. Make cuttings of the various Begonias for flowering during next November and December. Do not forget B. incarnata and B. manicata. Stop gross and barren shoots on the hybrid Roses in pots. Introduce Camellia stocks into heat, if they are to be grafted or inarched on the new wood when firm.

STOVE.

Endeavour to separate the Orchid tribe at this period as much as possible. If there is only one house, keep one end cooler by a free circulation of air, and by placing such as the Lælias and Cattleyas at the cooler end, and the true Air plants and Dendrobiums at the warmer end. Stanhopeas, Gongoras, &c., suspended in baskets should soon have a thorough watering. They will bloom safer and later, however, if kept dry another fortnight, maintaining much humidity in the atmosphere, whilst circulation of air can be obtained. The Hippeastrum and Amaryllis will now be flowering and will require rather liberal waterings, and some will soon need shifting; see that their leaves are preserved from injury. The Clerodendrons may be disrooted and plunged in bottom heat, and all exhausted winter-flowering plants should be served in a similar way.

COLD PITS OR FRAMES.

One of these structures should be fitted-up with sashes for the reception of the thinnings of the greenhouse. Many hard-wooded plants may be moved thither, and the lights protected with mats at night. This will make way for the increasing size and number of the Fuchsias, Cinerarias, Verbenas, and

Calceolarias, together with the cull of the flower-forcing pit.—W. Keane.

DOINGS OF THE LAST WEEK.

KITCHEN GARDEN.

Owing to the wet state of the ground we could do little beyond keeping the walks neat. The weather has been so mild, although on one or two mornings glass and mats freely exposed have been slightly crusted, that we have given more air than usual to such vegetables as Potatoes and Radishes in frames and pits.

Frames versus *Pits*.—For safety from such vermin as rats we prefer pits, as with sound wall-plates there is no danger of intruders at night, whilst into small hotbeds covered with frames they easily make their way. As regards vermin, then, pits are to be preferred to frames, but if a temporary hotbed is made in them there must be head-room for the plants, and often seedlings of others coming through the ground must, as a consequence, be too far from the glass in dull wintry weather. Therefore, except for safety from vermin, for early Potatoes, Radishes, Carrots, Turnips, and similar crops, we prefer a slight hotbed covered with sashes, as the plants, from being nearer the light, are more robust in growth than those farther from the glass, and as they grow the sashes can be raised from time to time. The easiest way to do this is to put a piece of wood under each corner of the frame, say 15 inches in length, 8 inches in width, and 1 inch in depth, level and askew at each corner, and on each piece to place as may be needed one, two, or more bricks. Of course the soil must be secured inside round the sides of the frame.

Even with *Potatoes* this raising of the frame will be less required if, after the shoots are 9 inches or a foot in length, the terminal bud of the shoot be picked out with the point of a small knife. This keeps the shoots shorter and bushier, and does not affect the early tubering, so far as our experience goes. It is quite different if you stop the shoots of such Potatoes by removing 2 or more inches of the top, as you would top Beans in bloom to cause them to set more freely. Such topping of Potatoes, according to our experience, always acts injuriously on the crop. The mere nipping-out of the terminal bud arrests elongation, and gives no unpleasant check to the plant.

FRUIT GARDEN.

We have not yet quite finished pruning and washing out of doors; nailing has yet to be done.

Planting must now be completed as soon as possible, and if properly done will often prove more successful than that performed in the middle of winter. The end of October and beginning of November may be considered the best times for planting fruit trees in general, as the ground is then warm enough to encourage early rooting. After it has been once cooled we have often found, in planting of fruit and forest trees, that the success was rather greater in March than in January and February, the reason, no doubt, being that as the warmth of the advancing spring told upon the buds, their swelling and expansion also reciprocally affected the roots. Merely as an evidence of the mildness of the season we may mention that a large Horse Chestnut tree, transplanted a month ago, is breaking freely into leaf. We are afraid of this fine tree being killed if we have a sharp frost. If in an ordinary season, the buds had expanded six weeks or more later, we should have felt sure that the roots would have met the wants of the expanding leaves.

Protecting and Retarding.—A little frost would greatly help fruit trees out of doors by keeping them back. If this weather continue, a little protection should be in readiness. If a sharp frost come at the end of the month, Currants, Gooseberries, and Raspberries may be saved by sprinkling over them rough hay or dry litter. Whitening them with limewash now, or earlier, will help to retard them. Apricots, Peaches, Plums, &c., against walls, that often do well without any protection, especially if the weather is dry, though a little frosty, will most likely need some protection this season, as the buds are so forward. Though we have none, yet on the whole for protecting purposes nothing is better than calico sheeting, easily moved by pulleys and rings. One reason why it is the best protector is because it is the best retarder. If we had it we would use it every sunny day to retard the blooms before they opened, and leave the trees fully exposed in dull days and all night, unless there should be a frost severe enough to injure the buds before they were fully expanded. When the bloom opens the practice must be reversed, so as to give the bloom all the sunshine possible. We feel sure that the retarding principle has not been sufficiently acted on as respects our finer fruits. Another object is also secured by the sheeting, if it is at all strained and kept 18 to 24 inches from the wall—namely, keeping the blooms dry. Then, again, the soil becomes heated, whilst the wall can be kept cool, before the bloom opens, and there is, therefore, a better reciprocal influence between the roots and branches.

For protection we have used almost everything that has been tried—broom, spruce, evergreens, beech twigs, common netting, woollen netting, fine Nottingham lace netting, and next to sheeting we should prefer the last, used as a fixture, as it lets plenty of light through, retards a little, and in wet weather the wet trickles down from top to bottom. All these modes involve so much trouble, and expense too, that we feel convinced by far the most economical way in the end for Peaches, Apricots, &c., would be to face the wall with glass in the orchard-house style. Instead of having a narrow house with upright glass we should prefer a lean-to from 10 to 12 feet in width, and then there is so much more valuable room enclosed.

Orchard Houses.—As far as can be done with safety as respects wind, we keep these open night and day so as to retard the trees as much as possible. Little more excitement would cause the buds to burst. If we have a very bright sun for several days we shall be tempted to shade the roof with a sprinkling all over of whitened water from a syringe. It is just possible that we may not have much more frost, but it is also possible that we may have sharp nights at the end of March, and even in April. In unheated houses we should then have no help but the calm air in a shut-up house. Where such houses are furnished with hot-water pipes or flue we may take the natural advantage of the forwardness of the season, as the means of heating will keep all safe.

We gave about a quart of water to each pot fruit tree, and will follow shortly with more. It is bad policy to allow the roots to become too dry while the buds swell, as they might drop.

Repotting Fruit Trees.—On this subject we have many inquiries, and to all, whether the trees in pots are at home, or have to be received from the tree merchant, we give one reply—Do not repot if you wish to have a crop of fruit. If the pot is small make the hole in the bottom larger, plunge the pot less or more, put a rim round it for rich top-dressing, and defer repotting until the fruit is gathered. If, nevertheless, repotting is resolved on, the soil round the ball cannot be made firm, but even then you must not be too sanguine as to results.

The same principle applies to pyramid trees taken up out of the ground; it is too late in this forward season to pot and expect a good crop if the trees have ordinary treatment. We have several times succeeded by potting in March, when the season was not so forward as this. The roots were placed in pots as small as would hold them, and the soil packed firm. The pots were plunged over their rims in a mild hotbed out of doors, ranging from 65° to 70°. The tops of the trees were fully exposed, only shaded from bright sunshine. By the time the flower-buds expanded the bed had cooled down, but the object aimed at had previously been attained—namely, the formation of fresh roots to meet the wants of the swelling and opening buds. If such plants had been potted in October they would have required much less trouble and care. Frequently we must make the best of unfavourable circumstances. —R. F.

TRADE CATALOGUE RECEIVED.

Daniels Brothers, Eaton, Norwich.—*Illustrated Seed Catalogue and Amateurs' Guide.*

TO CORRESPONDENTS.

*** We request that no one will write privately to any of the correspondents of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely to The Editors of the Journal of Horticulture, &c., 171, Fleet Street, London, E.C.*

N.B.—Many questions must remain unanswered until next week.

Books (*J. A. K.*).—The "Cottage Gardeners' Dictionary," and Keane's "In-door Gardening," and Keane's "Out-door Gardening" would give all the information you require. They can be had post free from our office, the Dictionary for 7*s.* 2*d.*, and the other two for 1*s.* 7½*d.* each. (*Miss B. D.*).—We do not publish either of the works you name, nor do we know them.

Size of Grapes (*J. Fletcher*).—We believe that Grapes are grown to a size never attained forty years since. We have recently seen berries of the Lady Downe's variety that no Grape could exceed.

Soot as a Top-dressing (*L. M. N.*).—It would no doubt benefit your heavy-soiled meadows. As moss is inclined to grow on them, we should harrow them with a light harrow after sowing the soot. Apply it during showery weather, and if you sow with your grass seeds some of the dwarf Trifoliums, these will help to exclude the moss.

Sea-kale Cutting (*R. H.*).—Cut the shoots once, and do not excite them by heat to produce shoots for another cutting the same season. On the shoots being cut, gradually remove the heating material. You need not discontinue cutting until all the shoots have been cut once. The Sea-kale season lasts from November to May. The plants must make a good growth during the summer.

Pruning Newly-planted Pear Trees (*A Constant Reader*).—We presume your trees are trained horizontally, in which case they will have shoots or branches on opposite sides of the stem at 9 inches or a foot apart. These side shoots should be trained-in at their full length, without cutting off even their points; but any shoots along them, except the short stubby shoots or spurs, should be shortened to within half an inch of their origin. Besides the side shoots or branches, the trees will have leaders; cut back the leader of each tree to 12 inches of last year's wood—two years old—and this will give you three shoots or more, but reduce the number to three. Train one as a leader, the other two as side shoots on opposite sides of the stem, and 1 foot from those next below. If the trees are "maidens" cut back to 12 inches.

Passion-flower Shoots Dying (*C. H. C.*).—The shoots were much mildewed, but we are not sure that mildew was the cause of their dying-off so suddenly. We find those with angular and not round shoots are very liable to be attacked by a fungus and die-off if there is drip from the roof. See that no drip falls on the stems or young shoots, give the plants perfect rest in winter, encourage growth when you can command a good brisk heat, and accompany it with plenty of air.

Early Violets—Chilian Beet—Shrubs for Swamp (*Tipperary*).—The best Violets for early bloom are Russian and Czar, the latter best of all. Chilian Beet for the flower garden is best sown at the beginning of April in pans placed in very gentle heat. When the seedlings appear place them near the glass, give plenty of air, and plant them out in moist weather at the close of May. The following will suit you—viz., Cornus sanguinea, Viburnum Opulus and its variety nanum, Deutzia scabra, Willow, Birch, and Alder. The last three are trees.

Stephanotis for Greenhouse—Vines Planting—Aucuba Pollen (*A Subscriber*).—Stephanotis floribunda would not succeed in a greenhouse, but it would do so in a warm vinery. In planting Vines it is not a good plan to layer a portion of the cane in the soil, but you must spread out the roots, cover them with from 3 to 6 inches of soil, keeping the setting-on of the roots just level with the surface, and cover the roots at that part 3 inches deep. The best time to plant is after they have begun to grow an inch or two. Collect the Aucuba pollen when quite dry, and fold it up in sheets of writing paper. It will keep for a long time, or until the female plants flower. Four Strawberries for an orchard house are President, Sir Joseph Paxton, Premier, and Dr. Hogg, or Cockscomb.

Sea-kale after Forcing (*A. B.*).—When you have cut all the shoots, plant the roots 12 by 15 inches apart in rich soil in an open situation; in planting surround each root with a little sand or very fine ashes. Supply liquid manure liberally from the middle of May to August. Strength will thus be secured for forcing in the cellar next winter, but we should only take up half the roots, allowing the others to remain, with the view of covering them with pots and litter in March, not so as to heat, but to exclude light. The roots in the cellar will produce a crop for early use, and those in the open ground will afford a succession. The latter we should take up in the following year, allowing those planted out from the cellar to remain, and thus only take up in alternate years. In this way the roots will be strong, but if you take up every year they will become weak. The position will suit Cabbage plants, but not nearly so well as one having the sun on it all day. Why have a frame for forcing Cabbages? It is quite unnecessary.

Selaginellas in Wardian Case (*Mechanic*).—It is remarkable that they do not succeed where Ferns thrive so well. We think the failure arises from the dryness of the soil during the winter. You might succeed better if you were to replant in August, for in some cases they become drawn, and then when the soil or atmosphere becomes drier they perish. As you succeed so well with Ferns, do not spoil them for the sake of the Mosses.

Acer Negundo fraxinifolium Propagation (*W. S.*).—In November or early in spring you may make cuttings of the ripe wood, 10 inches long, and insert them two-thirds of their length in rather light soil in a sheltered situation out of doors; but it is best propagated by grafting or budding on Acer platanoides or A. campestre. The best plants are obtained from seed.

Pavetta borbonica (*G. B.*).—It is difficult to strike; the easiest way to do so is to make cuttings of the half-ripened shoots with a firm base, and insert them singly in small pots in sandy peat and loam. Surround the base of the cutting with silver sand, place the pot within one of a larger size, cover with a bell-glass, and set the pots in a bottom heat of 75° to 80°. Keep the soil no more than moist, and shade from bright sun. We cannot say whether any benefit arises from a heel.

Crystals of Ammonia (*E. W. R.*).—Crystals of which of the salts of ammonia? Half an ounce of them to a bucketful of water will be ample of any of the salts to make a liquid manure for potted plants. To flowering plants it should not be applied until the flower-buds are developed.

Climbing Rose in Dry Situation (*J. S. K.*).—A stone slab placed over the roots of a Rose would keep the ground dry and healthy in long-continued wet weather, and moist in dry weather. Moreover, the stone when heated by the sun would geothermatise the ground. Such a Rose as the Cloth of Gold likes heat with an adequate proportion of moisture. "J. S. K." would be more likely to succeed with Maréchal Niel. The Cloth of Gold is very tender, and especially so at the tops of its flowering shoots. The severe hoar frost in the spring — it is a very early Rose—would perhaps destroy all the buds; and, as it is a shy bloomer, there may be no second series. I have two beautiful plants of Rêve d'Or on my south frontage. It is choice and distinct as to form and colour. In colour it is pure yellow with a coppery centre. I have never bloomed it, but blooms were sent to me. The plants are breaking finely. Roses are forward here (Dorset). I see a fat bud of "old Gloire" and a few others.—W. F. Radclyffe.

Peach House and Cucumber House (*T. B. W.*).—From the plan and description given, we cannot be sure of the reasons why the water in the Cucumber house will not heat. We would draw your attention to the following points. First, Where is your supply-cistern placed? If that communicates with the bottom of the boiler at once all the better. Is that cistern sufficiently elevated to be 2 or 3 feet higher than the highest pipe in the Cucumber house? Secondly, Do your return-pipes go near the bottom of the boiler? Thirdly, Are the 20-feet flow and 20-feet return 2-inch pipes connecting the boiler with the Cucumber house right as to level? They should not dip at all, nor should they be lower than the pipes in the Peach house. If these rise a little to the Cucumber house all the better. Fourthly, Even with this care, if there is no stopcock on the flow for the upper pipes in the Cucumber house, we should expect them to heat more than the pipe on the lower level for bottom heat. It is well to be able to give bottom heat and top heat independently of each other. Fifthly, If the pipes rise as you state, and there is no intermediate dip to speak of, and the supply-cistern is properly placed, then we should come to the conclusion that the want of circulation is owing to the presence of confined air in the pipes; and the best way to avoid that if present, and not always at the highest point, is to keep the supply-cistern filled, and allow your expansion-pipes to run for some hours, or for half an hour at a time, until the water is changed. The snapping and cracking you refer to in the pipes, also the overheating of the supply-cistern, almost convince us that that is the cause. If even in these 2-inch supply-pipes you have 2 inches of compressed air, the heated water cannot pass before it is dislodged. See what was stated in "Doings of the Week" last week as to heating a Cucumber house. With all going right your piping will not be sufficient for winter Cucumbers. It will do from March to November, or so.

Untidy Kitchen Gardening.—"Is a gardener to be blamed if he allows decayed vegetable leaves, as Scotch Kale, Brussels Sprouts, &c., to pollute the air of the kitchen garden?" We say, Decidedly he is to be blamed if he can find time and labour to remove all such annoyances, and does not do so. If there is time to attend to all such matters, and that attention is not given, we would find a remedy; but cases have come under our notice where the gardener, to keep things neat, ought to be hard at work for sixteen out of the twenty-four hours, and with that we have no sympathy.

Letting Garden, &c. (*F. P. G.*).—This matter we can scarcely enter into. The terms seem easy enough for the gardening tenant, but then much depends on the market to be obtained. We have known gardeners decline to take a large walled garden in the country for nothing, except keeping it in decent order, and then pay a high price for land near London. That was before railways were so common, but even they add to the cost, and soon make a rental. We hope all will go well, and cannot but admire your anxiety that the gardener should thrive and not lose by his bargain. The difficulties ahead will be when more than one day a-week is wanted for the flower garden and pleasure ground, and we presume there is a vinery, a greenhouse, and a conservatory, of which nothing is said, but which will require some daily attention.

Sooly-qua Cucumber (*Elston*).—It is thus described in the "Gardeners' Year-Book" for 1871—"A new Chinese Cucumber. A species of Cucurbitaceæ (most probably belonging to the Luffa section), producing fruits of enormous size, being between 5 and 6 feet long, and 18 inches in circumference, resembling huge Cucumbers. Received from Foochou, where it is grown and eaten by the natives in the green state, boiled with rice, &c."

Flower-Garden Plan (*W. G.*).—On the system adopted, the planting is very good. We are doubtful if your four 3's would not be better crossed, and the four 2's be crossed—that is, one pair of one arrangement instead of two pairs. Then, again, the beds being sunk, and coming thus more fully under the view of the windows, perhaps the double-pairing of each, as it would be more simple, may strike the eye most. If you adopt the proposed plan, then, though the centre, Centaurea edged with Dell's Beet, would look well, we should prefer the Iresine Lindeni, or even Perilla to the Beet, though the one at a distance would look as well as the other. Then for the four 2's, we think Trentham Rose will be too lofty, and, therefore, mar the unity of the design as to height. As you have Indian Yellow, that would be better, or such scarlets as Vesuvius or Emily Moreland, and as you have Madame Vaucher, we would edge with that. Then the four 3's would do, purple Verbena edged with Pyrethrum. 4, 4, Will do, but the Calceolaria should be low, as Aurea Floribunda. 5, 5, Plant as stated, Christine, and edge with Waltham Seedling, purple Verbena, or Iresine. 6, We would change, and have white-flowered Geraniums, or Bijou Geranium edged with dwarf Ageratum. 7, 7, 7, 7, As stated. 8, 8, As the beds are large, we fear the Gazania would cause them to look flat unless it were raised. As you have it we would prefer Waltham Seedling for a centre, and Golden Pelargonium round it, with an edging, if deemed necessary, of Lobelia speciosa. 9, Scarlet Geranium; but if they are low-growing, as they should be in such a composition, and unless the plants of Centaurea are small, we should prefer a good edging of the Koniga maritima or variegated Alyssum.

Covent Garden Measures (*S. B.*).—The following extract from our 'Gardeners' Year-Book" gives all the information you ask for—"These being often made either of osier or deal shavings, vary triflingly in size more than measures made of less flexible materials. *Sea-kale Punnets.*—8 inches diameter at the top, and 7½ inches at the bottom, and 2 inches deep. *Radish Punnets.*—8 inches diameter, and 1 inch deep, if to hold six hands; or 9 inches by 1 inch for twelve hands. *Mushroom Punnets.*—7 inches by 1 inch. *Salading Punnets.*—5 inches by 2 inches. *Half Sieve.*—Contains 3⅓ imperial gallons. It averages 12½ inches in diameter, and 6 inches in depth. *Sieve.*—Contains seven imperial gallons. Diameter 15 inches, depth 8 inches. A sieve of Peas is equal to one bushel; a sieve of Currants twenty quarts. *Bushel Sieve.*—Ten and a half imperial gallons. Diameter at top 17¾ inches, at bottom 17 inches; depth 11¼ inches. *Bushel Basket*—Ought when heaped to contain an imperial bushel. Diameter at bottom 10 inches, at top 14½ inches; depth 17 inches. Walnuts, Nuts, Apples, and Potatoes are sold by this measure. A bushel of the last-named cleansed weighs 56 lbs., but 4 lbs. additional are allowed if they are not washed. A junk contains two-thirds of a bushel. *Pottle*—Is a long tapering basket that holds rather over a pint and a half. A pottle of Strawberries should hold half a gallon, but never holds more than one quart; a pottle of Mushrooms should weigh 1 lb. *Hand*—Applies to a bunch of Radishes, which contains from twelve to thirty or more according to the season. *Bundle*—Contains six to twenty heads of Broccoli, Celery, &c.; Sea-kale, twelve to eighteen heads; Rhubarb, twenty to thirty stems, according to size; and of Asparagus from 100 to 125. *Bunch*—Is applied to herbs, &c., and varies much in size according to the season. A bunch of Turnips is twenty to twenty-five; of Carrots thirty-six to forty; of greens as many as can be tied together by the roots. Grapes are put up in 2 lbs. and 4 lbs. punnets. New Potatoes, by the London growers, in 2 lbs. punnets. Apples and Pears are

put up in bushels, sieves, or half sieves. A hundredweight of Kentish Filberts is 104 lbs. Weights are always 16 ozs. to the pound."

FRUIT TREES FOR NORTH WALL (*Glerum*).—There are none that will succeed except the Morello Cherry and the Red Currant.

POISONING CRICKETS (*Constant Reader*).—If the druggist will not sell you arsenic, we cannot help you in that direction. Chase's beetle and cricket poison is sold by all chemists.

BURNING CLAYEY SOIL (*Cheriton*).—We shall reprint an article on the subject next week.

EUCHARIS AMAZONICA CULTURE (*E. B. C.*).—Pot the plants and place them in a bottom heat of 70° to 75°. Encourage them with heat and moisture, and when growth begins to cease withdraw the pots from the bottom heat, place in the full sun, give plenty of air, and only sufficient water to prevent the leaves from flagging. The atmosphere should be dry, the night temperature 60° to 65°. At this stage a vinery would be a suitable structure. After a six or eight-weeks rest return the plants to bottom heat, and they will probably throw up flower-scapes. Continue the plants in a good heat, with plenty of moisture until October, then keep them dry, and in a temperature of 55°. After February give bottom heat.

EAST LOTHIAN STOCKS—VARIOUS (*F. J.*).—Plant out the Stocks sown last autumn and wintered in boxes, in rich light soil in a sheltered situation. Protect them in frosty weather. Plant a foot apart every way. They will flower in June, and continue a long time in bloom, but are at their best for a month to six weeks. They are very fine varieties. The bedding plants you have had plunged in sawdust in a cold frame, we should now set on a hard floor, removing them from the sawdust. We should not water the plants overhead until the beginning of April. It is not advisable to coat the glass with whitening and milk, as your doing so would keep out both light and heat, of which you cannot command too much. The propagating frame would be all the better of the glass being whitened; indeed, if the weather is bright cuttings must have shade.

GRAFTING VINES (*Barry*).—Vines can be grafted readily if the operation is performed at the right time. It should be done when the young shoots have grown 3 or 4 inches. The canes which are to be worked should be cut back before there is any danger of bleeding. Ordinary whip-grafting is the best method, and the scion should be put on opposite to the young shoot, which should be allowed to remain to draw up the sap. The graft should be clayed in the usual way. As soon as the scion commences to push, all other buds and shoots should be removed. Inarching is by far the safest method. You should train up a young rod from the base of the stock, and one from a pot plant of the variety you intend to introduce, grow both together until they are 4 feet in length, then cut a slice 3 or 4 inches in length from the side of each, cutting in to the pith. Place the two wounds together, and tie firmly with soft matting. In three weeks the ties must be slackened, but not entirely removed until the end of the season. Budding may also be performed in autumn with much success. The Vine eye must be prepared as in ordinary budding, except that a portion of the wood must be allowed to remain; a corresponding notch is cut on the young wood of the Vine intended as a stock, the bud is neatly fitted-in and tied with matting, dressing it with Mastic l'Homme Lefort. We have performed this operation successfully as late as October 17th, and the buds were sent a distance of four hundred miles.

DWARF POINSETTIAS AND EUPHORBIAS (*S. T.*).—Plant eyes of the Poinsettia now in a good top and bottom heat of from 70° to 75°; stop the shoots which spring from these until July, then take off the tops and put them in the ground. By this means you will obtain good plants for winter flowering. The Euphorbia may be treated in the same way, but the shoots should not be stopped after June. Rhynchospermum jasminoides must be grown in a greenhouse. It should be placed in a compost consisting of two parts fibrous loam, one of sandy peat, one of leaf soil, and a sixth part of silver sand. The pot should have be well drained, and the plant inserted firmly. When it becomes necessary to give it a shift, do so, but let it be a moderate one. Water it carefully when not growing, but when this is the case do so freely. It should have an airy position, and be supported as it developes. Bottom heat is not essential for its welfare. It is a very pretty, white, sweet-scented, climbing evergreen.

MARÉCHAL NIEL ROSE WITH FLOWER-BUDS (*J. M.*). — We presume the buds are what were formed in the autumn of last year, and if so the prospect of their developing is not great, though they may do so if the spring be mild. We should advise you to prune them moderately now, removing the weak and unripe wood, and cutting back the shoots to firm wood; should the buds expand they will give very poor flowers.

KING OF TOM THUMB NASTURTIUM (*Idem*).—The change of colour in the flowers was no doubt caused by the wet and want of sun which prevailed last autumn. For good colouring, bright weather is necessary. The fact of the seed having a tendency to change colour will not affect the colour of the flowers on the plant arising from it.

CELERY FOR MARKET (*W. C.*).—Sandringham White is a good sort, not liable to run, and attains a good size; Seeley's Leviathan White is larger, and good; and Ivery's Nonsuch is a most excellent red or pink Celery. These will suit you.

CAMELLIA BUDS NOT OPENING (*Joseph Smith*).—The cause of the bud you sent us not expanding is either due to the atmosphere being too cold and moist, or to the plant making weak growths, and having too many buds. Thin out the buds, leaving no more than one on the strongest shoot, and none at all on the weakest. When they begin to swell give the plants a temperature of 45° to 50°, and admit air freely. Judging from the flower we should say it was Mathotiana alba, a beautiful white variety with a very large flower.

SEA-KALE ROOTS DECAYING (*A. G.*).—We think the decay of the roots is due to their being planted among ashes in the tin over the tank heated by the hot water. Plant the roots in light sandy soil kept just moist, in a temperature of 52° to 58°. The shoots will come freely without the bottom heat from the lamp, which is wholly unnecessary, and, along with the ashes, probably the cause of the roots decaying.

NAME OF FRUIT (*Pomona*).—Golden Winter Pearmain.

NAMES OF PLANTS (*G. S. Betts*).—Pteris cretica albo-lineata. (*J. G.*).—1, Sedum aizoideum variegatum; 2, S. Sieboldii, Johis aureis variegatis; 3, Saxifraga Aizoon; 4, Primula denticulata; 5, Convolvulus mauritanicus. (*R. H.*).—1, Thujopsis dolabrata; 2, Retinospora pisifera; 3 and 4 are decidedly the same plant in different conditions, and is Juniperus excelsa. (*East Sussex*).—1, Phajus grandifolius, formerly more frequently known as Bletia Tankervillea; 2, An Eria, apparently E. bambusæfolia, or very near to it; 3, A hybrid from Rhododendron arboreum. (*F. Fowler*).—1, Aponogeton distachyon; 2, Melia Azedarach. Not native of Brazil, though no doubt cultivated there, as it is in most tropical climates, as a garden plant. It is native of the East Indies, and is frequently called the "Pride of China," or the "Pride of India."

POULTRY, BEE, AND PIGEON CHRONICLE.

EXHIBITING FOWLS.

SHOULD a bird on its return from a show be taken ill and die, it is unfair to put all the blame on the committee's want of proper attention. I think owners have quite as much to answer for, and in many cases more, than those gentlemen who undertake the management and responsibilities of our shows, the duties of which are very onerous and generally thankless.

But let us see how birds are treated while at home and at exhibitions. After the selection of the bird that is to win honour and fame for its owner, or, it may be, to sink from being pampered and overfed to a common dunghill cock, he is "put up," for two or three weeks before the day fixed for the show, in a quiet, warm, clean place, and there subjected to a course of training. He is first physicked if necessary, then carefully and regularly fed with the very best kinds of foods, and every dainty is offered to induce him to eat and increase in size—in fact, no expense nor trouble is spared to bring the bird to the highest possible state of condition. Stimulants are often given, even to a new-laid egg in a little sherry, and to make it of a proper consistence it is mixed with barleymeal. If, however, he feels indisposed to eat he is gently taken in hand two or three times a-day, the beak opened, and food put into his mouth, and worked down the throat, no matter if he dislikes the operation. At the expiration of the specified time he is considered to be thoroughly wound-up to the required state of perfection, and is sent away; perhaps he may have to travel a distance of several hundred miles. On the journey he is nearly suffocated in a luggage van. Arriving at the railway station he may have to wait there a few hours, and finally before reaching his destination, should his journey be in winter, he will be frozen on the outside of a van. And how is he treated while at the show? Instead of quietude and a well-known roosting place he finds him s f thrust into a wire pen with hardly enough room for him to turn round. He sees hundreds of other fowls in the same position as himself, all crowing, cackling, and excited. Everything is fresh to the bird; crowds of people continually pass and repass, and poke at him from early morning till five or six hours after his usual hour of going to rest, and this is repeated for several days, till at the end of the show the bird is quite worn-out from want of that rest and quietness so essential for the proper health of all kinds of poultry. His food during this time has been very different from what it was when he was at home. In place of those dainties and tit bits he has been so used to, he has had nothing but corn (too often very bad) and barleymeal mixed with cold water, which frequently produces that looseness of the bowels we so continually find birds suffering from while at shows. What with the excitement, change of home, food, and late hours, who can be surprised at birds returning to their owners in a state of illness, which frequently proves fatal? The only wonder to me is that so many birds stand exhibiting so continuously.

At some future time I may give my views on the treatment of birds while at shows, how to manage them on their return, and the injurious effects exhibitions have upon birds for breeding purposes.—W. J. NICHOLS.

POLANDS—CLASSES, CRESTS, &c.

I HAVE read with much interest Mr. Boothby's remarks upon our Polish classes, and, as he observes, not until we have separate classes for each variety, and adult and chicken classes, will justice be done to them. Of course, at small shows a chicken class could hardly be expected, but I certainly think there ought to be a separate class for each variety of Spangled, Gold and Silver, and an Any variety class for the others at the smaller shows.

Polish, especially Golden, are very much more numerous now than formerly. Four years ago, when I commenced with them, scarcely anyone in Sussex knew what they were, now there are more than twenty breeders within a radius of twenty miles. I do not exhibit much, for this reason—I find all kinds competing together. One judge prefers one kind, and another judge another kind, and so on.

Again, colour and markings, which, according to the "Standard of Excellence," are essential points, are too often quite left out; shape of crest, too, does not seem to be studied as it ought to be. I have seen badly-shaped large crests, birds with inferior colour and markings, stand before good-shaped crests of fair size, good colour and markings. We cannot study shape too much. I do not see why birds should be encouraged that have crests hanging too far over in front. What looks worse than a crest hanging down in front, wet and dirty? for instance,

the first-prize pair at Portsmouth; I visited the Show on the last day, and two more miserable objects could not be, the crests of both birds hanging over in front soaked with water. The second and third-prize birds were not soiled, and yet all drank from the same kind of water-vessel. This must speak for itself. Although the first-prize birds had the largest crests, they had certainly not the best-shaped ones, otherwise they would never have been in such a state; therefore, why should we take such birds as standards? You can easily see what keeps some of us from exhibiting.

As to Polish being hardy, I bred sixty-four last year, and never had a death except in the case of one which met with an accident. They feather-up very quickly, and require little care. My birds were hatched in May, and at just twelve weeks old I commenced killing-off the cockerels, and selling them for the table. The pullets began to lay one week after Christmas, and will continue to do so until moulting time without wanting to sit. Now, we cannot expect much more than this from any other variety we have.—A. Cruttenden, *Hayward's Heath.*

THE HAMBURGH COCK WITH PIN THRUST THROUGH HIS COMB.

We have had the following correspondence on this subject.

"Castle Yard, Knaresbrough, 1st March, 1872.

"Sir,—As solicitor and friend of Mr. Joseph Walker, of Birstwith, I ask for an opportunity of denying, on his part, any complicity in the placing the pin in the comb of the Hamburgh cock shown at Whitehaven, which has been so freely, and in some respects justly, commented upon in your Journal during the last three weeks. The bird was undoubtedly Mr. Walker's, but had only very lately been purchased by him; and I have now lying before me the letter of the person from whom the cock was purchased, in which he says, 'I am willing to confess that it was me, and not him that turned the bird. It was not done at his place at all; I do not like to see Mr. Walker wrongly blamed.'

"After this statement by the party committing the offence, and Mr. Walker's statement that he directed only the bird's head and feet to be be washed in the usual way, I trust that all remarks, so far as Mr. Walker is concerned, will be withdrawn; for anyone who knows him will feel sure that he would be the last person so cruelly to treat either bird or animal.

"I am, &c., Fred. Powell.

"The Editor of 'The Journal of Horticulture and Poultry Chronicle.'"

To this we replied—

"March 2, 1872.

"The Editors most readily will insert Mr. Powell's note, but they consider it would be much more satisfactory if the name of the cruel offender be published. He should be held up to the public as a warning. The Editors would publish the name in connection with Mr. Powell's note, and such publication is due to Mr. Walker, as it would satisfy the public more than the extract from the offender's note."

Mr. Powell's answer is this:—

"Castle Yard, Knaresbrough, 4th March, 1872.

"Whitehaven Show.

"Gentlemen,—I am sorry that I may not furnish you with the name of the offender against Mr. Joseph Walker and the public. Mr. Walker, erroneously I think, but out of consideration for the poor man's future welfare, promised him not to make his name public, but insisted upon his statement being made by himself in writing. If you require to see the letter I would ask for permission to send it to you, but it would have to be on the condition of the name not being made public.

"I am, &c., Fred. Powell.

"To the Editors of 'The Journal of Horticulture,' 171, Fleet Street, London."

We have not asked to see the letter, for we do not doubt its authenticity, but we consider that it is due to the public to publish the offender's name, that he might be punished by the aid of the Society for the Suppression of Cruelty to Animals. We refrain from other remarks.—Eds.

JUDGING AT POULTRY SHOWS.

The man who sends to a show his pen or two of birds, bred with what care and trouble he and his fellow fanciers alone know, and chosen from the numerous promising birds that have gone wrong and been killed or parted with, naturally wishes to win; but failing, his desire—nay, perhaps his sole reason for exhibiting, is to get the best possible opinion upon his birds, and to see or hear how they stand in comparison with others. With the present system of judging it is almost impossible for him to do this. He may go to the show, he may catch the much-badgered judge during the short time he remains to be blown-up (by the way, some do not remain at all), but this is a difficult thing to accomplish, and one that many object to on principle. Failing this, he is driven to use his own judgment, or that of sympathising friends, and the probability is that he returns home with the fixed idea that his birds ought to have done better; he can see they were not so good in some points as those that won, but then these are not perfect, and therefore in others he thinks them better, and striking a balance, with his natural bias thrown in as a makeweight, he declares that he has been hardly dealt with, though he has seldom anything tangible to prove. If he does not get to the show he sees by the catalogue that he is nowhere, or, worse, h.c., and cannot understand how it is.

I would suggest that this difficulty be got over by the adoption by the judges of numbered and perforated books, like those recommended for dog shows; the judge then makes his remarks on every pen (in most instances a few words are sufficient to condemn), and gives the secretary the torn-out half, which is numbered and copied from the other, which he retains for his own reference. The secretary prints the remarks after the exhibitor's name in a column set apart for that purpose in the catalogue, and the exhibitor would then be satisfied, I think. The sale of catalogues and entry of birds would greatly increase, and would thus enable poultry societies to engage more judges, which would be better than giving more time for judging; because judges could then be assigned to the classes they understand, for very few are good all round.

Thus, at the smaller shows the secretary and committee need not be so dependant on the large and professional exhibitors as to overlook trimming or other failings on their part, whilst visiting with a heavy hand the inexperienced clipping of the small man; nor need they allow these important personages to pen their own birds five minutes before the judges enter, whilst those of the smaller exhibitors have been shivering in the pens all night, and at that moment are standing with ruffled feathers and crops well distended, by the zealous feeder, who is determined they shall be well fed at "our show," whatever else happens. A little more printing, a little more trouble to the secretary (I do apologise to him, for I know he has always plenty of that commodity, and deserves all the gratitude we exhibitors can bestow), and another judge, would in most cases secure more equity.—Ginger Hackle.

COLCHESTER POULTRY SHOW.

(From another Reporter.)

The Committee, though few in number, were always at their post, and the most perfect order prevailed. Scarcely a pen even approaching inferiority of quality was to be met with, and it is long since we have seen a show with so few empty pens.

The Grey *Dorkings* were of a very high character, Mr. Lionel Patton taking with a grand well-shown pen, not only the first prize, but also the Dorking silver cup. The competition for this cup was great both among the Greys and also White Dorkings, the collection of the latter variety being particularly good. Lady Gwydyr's cup pen of Buff *Cochins*, and Mr. Horace Lingwood's Partridge-coloured, were such as would greatly add to the interest of any show, but the combined Cochin classes contained an entry of only eight pens. There was a large competition of Dark *Brahmas*, most of the pens receiving more or less favourable notice. The Light Brahmas were few, but generally good. The class of *Spanish* fowls was one of the most meritorious we have seen this season. *Hamburghs* in all the varieties were well shown, and seldom has a better collection been seen in this country. *Game* fowls were shown by many of our leading breeders; the silver cup for Game was awarded to a wonderfully perfect pair of Duckwings, though the competition on the part of the Black and Brown Reds pressed them closely. The well-known Red Pile cock of Mr. Samuel Mathews, that has, perhaps, received as many prizes as any Game cock existing, was completely thrown out, having become gouty in the feet, otherwise this old stager continues as hard in feather and clever in hand as can be desired. Game *Bantams* formed a couple of first-rate classes, Mr. Jeffries, of Ipswich, as usual in this neighbourhood, standing far ahead in the Black Reds, whilst the class for Duckwings was one of the gems of the Show. There was also a good entry in the class for Any other variety of Bantams; Silver-laced, White, and Black Bantams taking the prizes in the order named. A heavy entry of *French breeds* caused general attention. Crêve-Cœurs were first and second, and Houdans third. The Variety class for any breed not before named was unquestionably good; Malays, Sultans, and Cuckoo Rosy-combed Dorkings of great merit being the winners.

There was a good show of Rouen *Ducks*, but of Aylesburies only a single pen, the latter good enough, however, to obtain a first prize. The Variety Duck class contained many really valuable breeds, and the Selling classes (distinct prizes being offered for each sex) were a great success, containing many first-class birds.

Among the *Pigeons* were many of the best birds in the kingdom, some of them competing openly enough in the names of their owners, and some pens were lent for the occasion, a practice

now too general where collection silver cups are offered. Time has fully proved that collection cups, though ensuring a few noted first-class entries, have materially limited those of the general exhibitors, whose stock of Pigeons, perhaps, only embraces half-a-dozen breeds. We regret to state that in this division of the Show the most barefaced cases of trimming were found, and that, too, in considerable numbers; but, aided by a good light and sufficient time for judging, most, if not all, were properly exposed.

There was also a good and large collection of *Rabbits;* capital Lop-eared, Angora, and Himalayan being especially noteworthy.

Mr. E. Hewitt and Mr. Tegetmeier together judged the Game fowls, Game Bantams, and Rabbits; the whole of the other classes of poultry being judged by Mr. Hewitt. Mr. Tegetmeier awarded the prizes for Pigeons. We published the prize list last week.

FAKENHAM POULTRY SHOW.

The following awards were made at the Fakenham and West Norfolk Show, held on February 27th and 28th.

Dorkings (Coloured, except Silver-Grey).—1, Cup, and County Prize, E. W. Southwood, Fakenham. 2, F. C Hart, Attleborough. *c*, Mrs. C. North, Rougham; W. Burrows, Diss; J. Norman, Colchester.

Dorkings (Any other Variety).—1, L. Wren, Lowestoft (Silver-Grey). 2 and *hc*, Rev. F. Tearle, Gazeley Vicarage, Newmarket (Cuckoo and White). County Prize, W. Woodhouse, King's Lynn (White). *c*, A. Taylor, Starston (Silver-Grey).

Cochins (Partridge and Buff).—1 and Cup, Lady Gwydyr, Stoke Park, Ipswich. 2, Horace Lingwood, Needham Market. County Prize, T. W. Savory, Warham. *hc*, H. Lloyd, jun., Handsworth.

Cochins (Any other Variety.—1 and 2, R. S. S. Woodgate, Pembury, Tunbridge Wells (White). County Prize, Capt Bignold, Norwich (White).

Brahmas (Dark).—1, Lady Gwydyr. 2, Horace Lingwood. County Prize, W. Branford. *hc*, H. Dowsett, Pleshey, Chelmsford. *c*, W. Burrows; J. P. Case, Fakenham; Col. Cockburn, Bracondale, Norwich.

Brahmas (Light).—1, H. Dowsett. 2, P. Haines, Palgrave. County Prize, J. P. Case

Game (Brown and other Reds).—1 and Cup, H. M Julian, Hull. 2 and *vhc*, J. Fletcher, Stoneclough. County Prize, G. P. Rouse, Fakenham. *hc*, W Rayner, Ipswich; G. P. Rouse. *c*, J. H. Salter, Tolleshunt D'Arcy; E. Branford; H. E. Martin, Sculthorpe.

Game (Any other Variety).—1 and County Prize, G. P. Tricker, Fakenham (Duckwing). 2, W. Rayner (Duckwing).

Game (Any Variety).—*Cock.*—1, H. E. Martin. 2, T. Wade, Stibbard (Brown Red).

Hamburghs (Gold and Silver-spangled).—1 and Cup, Ashton & Booth, Mottram. 2. R. H. Ashton, Mottram. County Prize, K. Middleton, Fakenham. *vhc*, W. K. Tickner, Ipswich; W. Groom, Ipswich. *c*, J. B. Lakeman; L. Wren; J. P. Case.

Hamburghs (Gold and Silver-pencilled).—1, J. Webster, Ca'ne, Lancashire. 2 W. K. Tickner. County Pri e, E. Farrer, jun., Swaffham.

Spanish.—1, 2, and County Prize, W. Woodhouse, King's Lynn. *c*, J. Norman, Colchester; Col. Cockburn.

Minorcas.—1 and County Prize, J. P. Case. 2, R. Wilkinson, Guildford. *c*, J. A. Miles, Fakenham.

Polands.—1, 2, County Prize, *vhc*, *hc*, W. K. Patrick, Lynn. *c*, Lady Gwydyr, Stoke Park, Ipswich.

French.—1 and Cup, C. H. Smith, Radcliffe, Notts (Crêve-Cœur). 2, W. Burrows (Crêve-Cœur). County Prize, Miss J. A. P. Leathes, Fakenham (Crêve-Cœur). *vhc*, W. Dring, Faversham (Crêve-Cœur). *hc*, — Fuller, Holt (Houdan). *c*, W. Cutlack, jun, Littleport (Houdan); Lord Hastings, Melton Constable (Houdan); J. J. Malden, Biggleswade (Crêve-Cœur); J. Franklin, Terrington, Lynn (Crêve-Cœur).

Game Bantams (Brown and other Reds).—1 and Cup, W. Adams, Ipswich 2 and County Prize, G. Morling, Lynn. *hc*, W. Adams; A. Taylor. *c*, W. B. Jeffries; W. F. Addis, Fulwood.

Game Bantams (Any other Variety).—1 and *c*, Rev. F. Cooper, Ampney. Crucis (Duckwing). 2, W. Adams (Duckwing). County Prize, G. Morling (Duckwing).

Bantams (Any other Variety).—1, F. E. Thirtle, Lowestoft (Black) 2, Rev. F. Tearle, Gazeley Vicarage, Newmarket (White). County Prize, Mrs. North, Rougham Hall (White). *hc*, R. H. Ashton (Black); *c*, C. Woods, Harleston (White-booted).

Any other Distinct Variety.—1, H. Garbut, Whitby (Black Hamburghs). 2, Lady Gwydyr (Silkies). *c*, E. Hancock, Spalding (White Leghorn).

Table Fowls.—1, E. W. Southwood (Dorking). 2, W. Cutlack, jun. (Brahma). 3, H. Dowsett (Dorking).

Selling Class.—*Cock.*—1, C. Gay, Lynn. 2, Lady Gwydyr. 3, E. W. Southwood. 4, J. Wright, Lowestoft. *hc*, H. Plattin, Fakenham; W. Bunn, Kettlestone. *c*, H. Dowsett.

Selling Classs —*Hen.*—1. Lady Gwydyr. 2, Miss J. A. P. Leathes. 3, H. E. Martin. 4, H. Dowsett. *hc*, G. P. Tricker. *c*, E. P. Upcher, Bungay; J. P. Case.

Selling Class.—1, J. P Case. 2, E. W. Southwood. 3, Miss E. M. Hawker, Tunbridge Wells. 4, H. Thurlow, Burnham Market. *hc*, T. Spurr, King's Lynn; H. R. Plattin. *c*, H. Dowsett; E. W. Southwood.

Turkeys.—1 and *hc*, E. Arnold, Whittlesford. 2 and County Prize, R. J. Kendle, Weasenham. *c*, Mrs. C. North; Mrs. Reeve, Thetford.

Geese.—1 and County Prize, J. W. Sharman, Fakenham (White). 2. J. Hammond, Ball (Chinese). *hc*, J. W. Sharman (Sebastopol); J. Hammond (Canada).

Ducks (Aylesbury and Rouen).—1 and County Prize, W. Nicholson, Brisley Hall. 2, R. Rouse, Fakenham. *c*, A. Page, jun., Lowestoft; W. Burrows.

Ducks (Any other Variety).—1 and County Prize, A. T. Binny, Sennowe. 2, H. Savory. *hc*, R. H. Ashton. *c*, Rev. J. Richardson, Sandy Rectory (2).

PIGEONS.

Carriers.—1, W. Minson, St Ives. 2. S. Holroyd, Oldham. County Prize.—H. Thurlow. *c*, H. Yardley, Birmingham.

Pouters.—1, H. Pratt, Birmingham. 2 and *hc*, Mrs. Ladd, Calne. County Prize, H Thurlow. *c*, H. Yardley.

Tumblers.—1 and County Prize, W. Woodhouse. 2, E. W. Southwood. *c*, E. H. Willet, Norwich.

Barbs.—1 and Cup, S. Holroyd. 2, H. Yardley. County Prize, H. Thurlow. *c*, J. W. & S Renshaw, Littleborough, Manchester.

Fantails.—1, J. F. Loversidge, Newark. 2, Mrs. Ladd. County Prize, R. Crane, jun. *c*, H. Yardley (2).

Antwerps.—1 and 2, H. Yardley. County Prize Withheld,

Any other Distinct Variety.—1, H. Thurlow. 2. Mrs. Ladd. 3. H. Garbut.

Selling Class.—1, R. Allen, Burnham Overy. 2, R. J. Turner. 3, W. Woodhouse. 4, R. Crane, jun.

CANARIES.

Clear Yellow.—1 and 2, Cockle & Watson, Lynn. *hc*, J. Mortimer, Smithfield, London; R. Bartram, Old Walsingham (2). *c*, J. Goodman.

Clear Buff.—1 and Cup, J. Mortimer. 2 and *c*, R. Bartram. *hc*, Cockle and Watson (2).

Variegated (Yellow or Buff).—1. Cockle & Watson. 2, R. Bartram. *c*, W. H. Spencer, Burnham; J. Newland, Fakenham; J. Mortimer.

Belgians.—1, E. Patrick, Fakenham. 2, J. N. Harrison, Belper.

Lizards.—1 and 2, Cockle & Watson.

Mules (Any Variety).—1 and *vhc*, J. Goodman. 2, Cockle & Watson. *hc*, W. Woodhouse. *c*, W. M. Farrer; Cockle & Watson.

Any other Variety.—1, R. Bartram. 2, E. Patrick. *hc*, J. Mortimer (2).

British Song Birds (Any Variety).—1, W. Wright, Fakenham. 2. W. M. Farrer. *hc*, Cockle & Watson; J. Colman, Fakenham (2). *c*, T. J. Miller, jun., Fakenham; G. W. Adkin; E. Patrick.

Selling Class.—1, 2, and *hc*, Cockle & Watson. 3, W. Woodhouse. *c*, J. Mortimer; F. Patrick; R. Bartram.

Extra Class.—*hc*, E. Farrer, jun. (Silver Pheasant); Miss Spurrell (Love Birds).

RABBITS.

Lop-eared.—1, H. Cawood, Thorne. 2, J. Farrow, Romford. 3, County Prize, and *hc*, H. Thurlow. *c*, A. H. Bignold, Norwich; Rev. F. F. Wilson, Rudham Vicarage; J. A. Clarke, Peterborough.

Any other Variety.—1 and County Prize, C. Dobson, Lynn. 2, S. G. Hudson, Hull. *hc*, Rev. J. Richardson; W. M. Farrer. *c*, W. W. Ringham, Spalding; A. B. Simpson, Trumpington; J. Dorton, Burnham Market (2).

Judges.—Mr. W. B. Tegetmeier and Mr. P. H. Jones.

BRADFORD ORNITHOLOGICAL SOCIETY'S SHOW.

This took place on February 24th and 25th; the awards were as follow:—

Belgian.—*Clear Yellow.*—1 and 2, J. Hart, Burley, Leeds. *hc*, J. Shepherd, Lidget Green, Horton. *Buff.*—1, C. Holdsworth, Bradford. 2, J. N. Harrison, Belper. *hc*, W. Needle, Hull.

Norwich.—*Clear Yellow.*—1, W. Needle. 2, J. Tillotson, Manningham, Bradford. *hc*, Moore & Wynne, Northampton. *Clear Buff.*—1, Moore & Wynne. 2, C. Burniston, Middlesbrough. *hc*, W. Newell, Baildon; W Needle.

Canary.—*Evenly-marked Yellow.*—1, P. Rawnsley, Lidget Green. 2, W. Rawes, Bradford. *hc*, Moore & Wynne. *Evenly-marked Buff.*—1, P. Rawnsley, 2, W. Rawes. *hc*, J. Moorhouse, Little Horton; J. Stevens, Middlesbrough.

Lizard.—*Golden-spangled.*—1, J. Taylor, Middlesbrough. 2, R. Ritchie, Darlington. *hc*, L. Belk, Dewsbury; J. Tillotson. *Silver-spangled.*—1, W. Rawes, 2, L. Belk. *hc*, J. Walker; R. Ritchie.

Yorkshire.—*Yellow.*—1, J. Cockshott, Fearncliffe. 2, H. Brook, Horton. *hc*, J. Wilkinson, Great Horton; J. Bastow, Wibsey. *Buff.*—1, I. Rawnsley. 2, H. Brook. *hc*, J. Walker, Baildon.

Coppey.—*Clear Yellow.*—1, W. Rawes. 2, J. Moorhouse. *hc*, J. Shepherd. *Clear Buff.*—1, J. Stevens, Middlesbrough. 2, W. Rawes. *hc*, E. Gott, Frizingley.

Goldfinch.—1, B. Lancaster, Shipley. 2, P. Rawnsley. *hc*, C. Holdsworth; J. N. Harrison.

Goldfinch Mule.—*Evenly-marked.*—1, W. Needle. 2, T. Fawcett, Baildon. *hc*, I. Rawnsley; J. Wilkinson

Any other Variety.—1, W. Rawes. 2, J. Kay. *hc*, I. Rawnsley.

Lark.—*Old.*—2, R Brown. *Young.*—1, E. Robertshaw, Bradford. 2 and *hc*, F. W. Shackleton, Bradford.

THE BIRMINGHAM PHILOPERISTERON SOCIETY'S SHOW.

This local Show excited great interest among fanciers and breeders of Pigeons, and it was even better supported than any of the exhibitions of former years. At the meetings of this Society, not only are birds exhibited from the lofts of most of our well-known breeders, but also by private individuals, who rarely, if ever, risk the safety of their favourites at ordinary exhibitions. The Black *Carrier* classes were unexceptionably good; the entry of Duns and Blues, however, though of unusually good quality, were very limited as to numbers. In the *Pouter* classes the White were such as can but rarely be met with; the Yellows and Reds were scarcely so sound in colour as desirable. The *Fantails*, *Barbs*, Almond *Tumblers*, and Short-faced Tumblers were as splendid classes as we have seen for some time. The *Owls*, both Foreign and English, together with the *Turbits*, were generally perfect. It was a matter of regret that in *Nuns* and *Jacobins* instances of trimming occurred, and in these cases the pens were disqualified by the Judges. This was the more reprehensible as being practised among members of a Society who hold this annual meeting chiefly as a test of their individual success in breeding first-rate specimens during the past season. As might be fairly anticipated the *Antwerps* and *Dragoons* proved of the highest possible character; the condition, too, in which most of these birds were shown was perfection itself. For the first time a Selling class with a limited price of £2 per pen was instituted, and was so great a success as not only to add by commission on sales several pounds to the funds of the Society, but also give the opportunity to intending purchasers of obtaining some high class specimens at prices very far below the prohibitory ones usually fixed on Pigeons of equal merit in the present day. Six prizes were here given, and certain it is as many more were deserved, consequently the sales in this portion of the Show were beyond expectation. The greatest attention was paid to the birds during the time the Show was open, and in a very brief time after closing all the birds were on their way to their respective owners. The principal classes were judged by Mr. Hewitt and Mr. Yardley; the Selling class prizes being awarded by Mr. Hewitt and Mr. Child.

Carriers (Black).—*Cocks.*—1, G. F. Whitehouse, King's Heath, Birmingham. 2 and 3, F. Smith, Selly Oak, Birmingham. *c*, J. F. While, Birmingham. *Hens.*—1 and 2, F. Smith. 3, G. F. Whitehouse. *hc*, J. Watts, Birmingham.

Carriers (Dun).—*Cocks.*—1, G. F. Whitehouse. *Hens.*—1, G. F. Whitehouse.

Carriers (Any other colour).—*Cocks.*—1, J. Watts. *Hens.*—1, J. Watts.

Pouters.—*Cocks.*—1 and 2, R. G. Downing, Birmingham. *Hens.*—1 and 2, R. G. Downing. 3 and *hc*, J. Watts.

FANTAILS.—1 and 3, J. Walker. 2, J. W. Edge, Erdington. *hc*, H. Adams, Beverley.
BARBS.—1, F. Smith. 2, J. Fielding, jun., Rochdale. 3, R. W. Richardson, Beverley.
ALMONDS.—1, H. Adams. 2, J. Fielding, jun. 3, J. Peace.
BALDS AND BEARDS.—1, J. W. Edge.
SHORT-FACED.—*Any other Variety.*—1 and 3, H. Adams. 2, J. Watts.
OWLS.—*Foreign.*—1, J. Fielding, jun. 2, R. W. Richardson. 3, J. Watts.
English.—1, J. W. Edge. 2, J. Watts. 3, G. F. Whitehouse.
TURBITS.—1, J. W. Edge. 2, R. W. Richardson.
NUNS.—1 and 2, R. W. Richardson.
JACOBINS.—1, *cup*, and 5, R. G. Sanders, Beverley. 2 and *c*, E. E. M. Royds, Greenhill, Rochdale. 3, 4, and 6, F. Waitt, King's Heath, Birmingham. *hc*, R. W. Richardson.
TRUMPETERS.—1, J. F. While.
DRAGOONS.—*Blue.*—1, C. Gamon, Chester. 2, W. H. Mitchell. 3, J. Watts. 4, F. Smith. *Yellow.*—1 and 2, W. H. Mitchell. *c*, J. Watts. *White.*—1, H. Adams. 2, J. Watts. 3, W. H. Mitchell. *c*, W. Reddihough, Kelbrook, Colne. *Any other Colour.*—1, W. H. Mitchell. 2, J. Watts.
DRAGOONS (Single).—*Blue.*—1, W. H. Mitchell. 2, J. Watts. 3, R. W. Richardson. *Any other Colour.*—1, H. Adams. 2, J. Peace. 3, R. Reddihough. *hc*, W. H. Mitchell.
ANTWERPS.—*Blue.*—1, W. H. Mitchell. *Single Cocks.*—1, J. Watts.
ANY VARIETY EXCEPT CARRIERS, POUTERS, ANTWERPS, OR DRAGOONS (Single Birds).—1 and 2, H. Adams. 3, R. G. Sanders.
BADGES.—*Black.*—1, J. Massey, Lozells, Birmingham. *Blue.*—1, J. W. Edge.
SADDLES.—*Black.*—1, G. While. *Blue.*—1, J. F. While.
ROSEWINGS AND REDBREASTS.—1, J. W. Edge. 2, J. Watts. *c*, J. Massey.
TUMBLERS.—*Any other variety of Muff-legged.*—1, J. Massey.
BALDS AND BEARDS.—1, J. Watts.
CLEAR-LEGGED.—*Any other Variety* —1, J. Watts.
SELLING CLASS.—1, R. W. Richardson (Black Barbs). 2, 5, and 6, H Yardley, Birmingham (White Ponter, Black Carrier, and Blue Fantail). 3, J. Peace, Burton-on-Trent (Silver Owls). 4, J. W. Edge (Black Barbs). *hc*, H. Yardley (5); J. F. While (Carrier and Dun Carrier); H. Adams (2); G. F. Whitehouse (Carrier) (2); J. Walker; J. Watts. *c*, H. Yardley (6); R. G. Sanders (Jacobins); J. W. Edge (Owls and White Dragoons); J. F. While (Carrier); W. H. Mitchell (Silver Dun Antwerp); J. Watts.

SILVER DRAGOONS' BARS.

YOUR correspondent, Mr. Allsop, states that he has six years' experience as a breeder of Silver Dragoons to support his opinion that the colour of their bars should be "dark brown," backed by the decisions of sundry judges at shows which he enumerates. After what has been done in this way about Dragoons I, as an old Dragoon-fancier, pay no attention to judges' decisions about them. I have seen some that convinced me the judge did not know what a Dragoon is. But Mr. Allsop and I differ; and as I consider that the bars of Silver Dragoons, as well as those of every other Silver of what may be called English Pigeons, should be black, perhaps you will allow me, in support of this opinion, to state something of my experience, also reasons which every experienced breeder, I am sure, will endorse.

Dragoons are not included in the "high-class" fancy, consequently there are many good judges of "high-class" Pigeons who know next to nothing about Dragoons, and this, doubtless, accounts in a great measure for the ridiculous opinions, decisions, and treatment which this gallant bird has for so many years experienced from judges who are chiefly high-class fanciers. I have been a Pigeon-fancier for upwards of thirty years, and have kept and bred most varieties; my tastes have always been those of a "breeder," whom I define as a man who watches every match of his Pigeons, studying the result in the birds bred, in order to increase his knowledge in breeding for colour and configuration. As a boy I had a passion for Pigeons, used to haunt Pigeon shops, and eagerly devour all that I heard from old men fanciers on the points, kinds, and breeding of Pigeons. My breeding bias, as my experience grew, enabled me to check, prove, and find out the truth from the errors I heard.

Thirty years ago the Antwerp was comparatively unknown in this country, and the Dragoon, being the very best Pigeon we had here, was the rage with "flying men," and had received at their hands great attention for more years than I can speak of with any certainty, for all the old men said it was then as the old men of their time knew and treated it. I myself hold the opinion, that if the Dragoon had received the same attention in selection and training (and been kept as a pure breed) as his gallant descendant the Antwerp has in Belgium, where the facilities for training are incomparably superior to those we have in this country, he would have equalled, if not surpassed, the deeds of the Antwerp. There are old "flying" men who say now that the young Dragoon will both stand and do more work than the Antwerp up to a certain age; but certain it is that no young Antwerps will fly in this country such distances as we are told they do in Belgium. Of course this can be from nothing but the climate, which is so much against the birds in continuous training. It is, therefore, among the old "flying" fanciers and breeders, instead of the "high-class" fanciers, that we must look for the correct knowledge of what a Dragoon is.

In my time I have kept and bred every colour of Dragoon, for of these birds I was very fond, and having paid them so much attention, and heard so many old fanciers' opinions on them, I could with the greatest confidence affirm that if a jury of old Dragoon-fanciers of forty or fifty years' standing were empannelled—it would be easy to do this, as they could be readily found—they would unanimously say that black was the proper colour, and black it had ever been in the memory of the oldest fancier they knew. They would also give the breeding reasons for this, founded on the very remark that Mr. Allsop makes, but wrongly applies—viz., that in "breeding Silvers it is next to an impossibility to obtain the black bar," as conclusive proof that black is the proper colour. These reasons I will, with your permission, give in another letter, as they will take up some space. As I am standing up for the bold bird who has been so shamefully treated and neglected for so many years, I will try to do it thoroughly.—CARRIER.

PHENOMENA IN POULTRY-KEEPING.

WOULD the following facts be worth relating in your Journal? A man keeping a livery stable here injured a Brahma hen with the wheel of his fly, so much that he killed her. On the second day after he opened her and found two eggs, one soft-shelled, the other perfect; he put this egg under a hen that was sitting on Spanish eggs, and it produced a fine chick, which is now a cockerel weighing 9 or 10 lbs.

Secondly, the Rev. Dr. Harris, of this place, has now a Silver-spangled Hamburgh hen, fifteen or sixteen years old, which produced eggs last season. I saw her this morning, and she appears healthy except in the whiteness of the head. She has never been out of a space about 14 feet by 12 feet.—J. N. WHITEHEAD, *Torquay.*

VENTILATION OF HIVES.

IN October last, when preparing stocks for the winter, I had to deal with a wooden bar hive having glass sides made in accordance with Taylor's directions. This hive, with its glass sides, giving peculiar facilities for inspection, is a favourite, but it has always been troublesome from its liability to damp in winter, and consequently the bees to disease. Once in particular, some years ago, I almost lost a valuable Ligurian stock in it, which had nearly succumbed to dysentery in the spring, and was only saved by joining the queen and last handful of the bees to a queenless black stock.

I resolved, therefore, to adopt a plan which, although not new, does not seem to have been much practised. I took an empty hive, one of the same series of Taylor's boxes, and divested it of everything except the sides; I then stretched a thin woollen cloth secured with tacks over the bottom; the box thus made was then filled, but not pressed, with clean dry straw, cut short to make it lie smooth and close. It was then placed with the cloth side next the bees on the top of the hive in place of the crown-board, which had been taken off to make room for it. The outer wooden covering, rather larger than the hive with the sloping roof ventilated under the eaves, was then put in its place, and the whole left till a few days ago, when the straw-filled box was removed and the crown-board replaced. A minute inspection showed that the arrangement had acted perfectly. There was no trace of damp inside, on the combs, hive, or floor-boards; the glass sides were undimmed, and only three or four dead bees were found on the board. The straw, while acting as a protection from cold, appears to have absorbed the damp, which eventually found its way out through the apertures in the outer cover.—J. B.

LADY GWYDYR'S POULTRY ESTABLISHMENT.

No. 1.

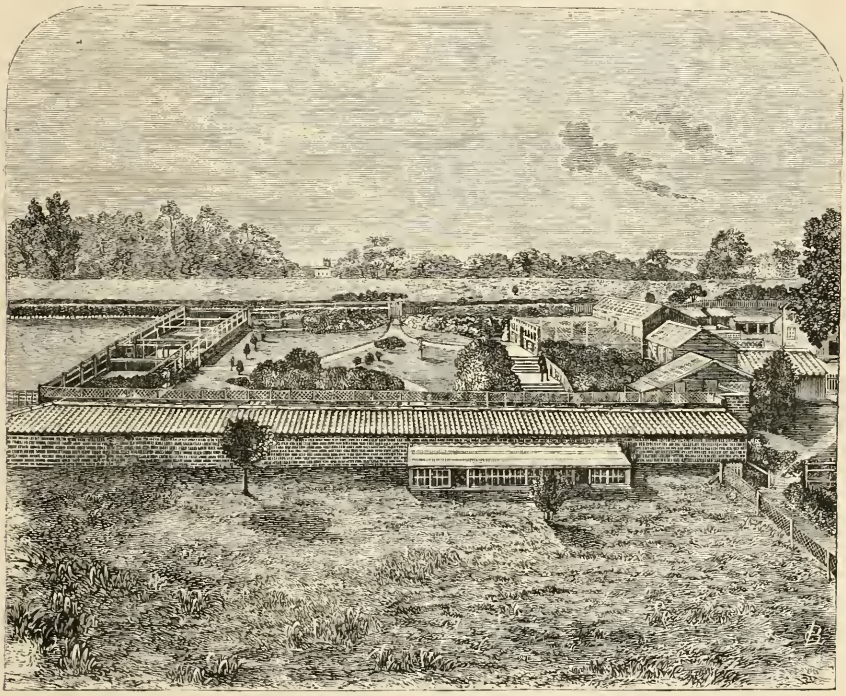
THIS, the most complete, and one of the largest, poultry yards in the kingdom, is situated at Stoke Park, Ipswich. Its site was formerly a farmyard; the numerous cow-houses, stables, and other appurtenances usually found at well-appointed farms, with many additions, have all been converted into poultry pens and runs. The greater part of the immense range of buildings is built on the side of a small hill. The soil is very light and sandy, so that the drainage is unusually good; and no matter how heavy and continuous the rain may be, with the aid of the complete system of drainage adopted in all the yards it passes away very quickly, leaving them free from water, which is carried into the valley below, there forming the Duck ponds. Mr. F. Wragg, the manager, has his residence in the midst of the buildings. A road running through the middle of the place divides it into two distinct yards, the show yard and the working yard.

We now propose to describe the first of these—viz., the show yard, of which our engraving* gives a general view. On the right-hand side, by the tree, we obtain a glimpse of the manager's house; in the distance is seen the mansion belonging to Lord Gwydyr. On entering the yard through the gateway at the further side, and turning to the left, we find eight pens of various sizes, from 15 to 20 feet wide, and 25 feet long. The roosting places are in the sheds at the back of these runs. At

* From a photograph by Mr. Vick, of Ipswich.

the bottom are four more pens about 25 feet wide and 20 feet long. Only the backs of the sheds are shown in our engraving. On the other side are three large pens. At the top, in a large iron cage, we noticed a big, shaggy, ferocious-looking dog; although he is kept in this iron cage it is considered advisable to chain him. We were told he was "a rum customer." His looks certainly did not belie him. The bottoms of all the runs are covered several inches deep with sand, and every morning a fine rake is drawn over this, removing anything that may have accumulated during the previous day. It keeps the pens clean, and gives them a neat and tidy appearance. In one corner, and under cover, is a dust bath, composed of old mortar and rubbish; quantities of this are eaten by the birds. Growing round the front and over the tops of these pens, which are only wire and open to all kinds of weather, are honeysuckles, roses, jasmines, and many other climbing plants, thus protecting the birds from the cold winds and the heat of the sun. The centre, measuring about 100 feet by 80, is covered with grass; and hardy evergreen shrubs are planted in different places, affording shelter. The whole of this space is one large run, and the poultry in the houses round the sides get their run in rotation. Amongst the roots of these shrubs in the soft, sandy soil, the birds at the time of our visit were indulging to their heart's content in a bath, every one the picture of perfect health and enjoyment.

The grass runs, cleanliness, good food, regular and systematic feeding, and the attention which the birds enjoy, are seen in the splendid condition of every bird on the premises, all this



Stoke Park—The Show Yard.

care contributing in no small degree to the immense success which Lady Gwydyr's birds have achieved at almost every show throughout the kingdom. No matter how well anyone's stock may be bred, unless these matters are attended to, the birds will be sure to sicken and die.

Vases are also distributed over the grounds and filled with geraniums and other flowering plants, and these, together with the many magnificent birds in their bright fresh plumage and graceful motions, make a very pretty and attractive picture, such a one as must often delight and gratify her ladyship and her visitors on inspecting the show yard.

In our next we intend describing some of the buildings and their uses, also the egg-room, and giving a few hints we received as to the management.

OUR LETTER BOX.

Fowls Catarrhed (*F. D. Q.*).—Your fowls are probably suffering from cold, the result of continual wet, also from want of condition owing to the sloppy and cold state of the earth. Such ailments generally end in roup, and the appearances you mention are suspicious. Sunshine and dry weather will do more than anything else for the recovery of the patients. Give them bread and ale freely, let every sick fowl have a pill of camphor the size of a garden pea, morning and evening. If this will not cure them, use Baily's pills. It used to be considered very catching, and was very fatal, but of late it has lost its intensity, and is not so much dreaded.

Game Hen not Laying (*Nine-years Subscriber*).—We shall be very glad to hear the result of your trials. Admitting that the hen is healthy, it would seem to us as impossible that she should live twelve months without laying, as that she should live the same time without food. It may be she has an internal injury, such as a fissure in the egg-organs. If such be the case she will never lay, but will become a hen cock, and the first stage of that transformation gives to a hen a brightness of colour, and appearance of condition, and a straight upright comb, that are never suspected till she is caught in the act of crowing.

BANTAMS' EGGS FOR SITTING (*G. F.*).—The fresher the better; but we have known eggs much older than three weeks that have produced vigorous chickens.

NEST FOR CANNIBAL HENS (*J. C. M. H.*).—The nest of which we published a drawing in our No. 522 is not patented, and any carpenter could make one if he see the drawing.

GOLDEN-PENCILLED HAMBURGH COCK (*Gold*).—There is no such thing as a Golden-pencilled Hamburgh cock with white legs. Such a bird must be disqualified.

BREEDING DUCKWING GAME BANTAMS (*S. G.*).—In breeding for the highest class of exhibition birds, it is an admitted fact that you cannot breed cocks and pullets from the same parents. The bird you describe should be a very good one, and we advise you to breed from him, but we should also take some of our best pullets, and put with another cock. The colours of the Duckwings, like the Sebrights, are constantly recruited by crosses with birds having some quality of colour that they lack, and it is necessary because they are birds of colour. Breeding-out is always such a tiresome process, that it is easier to make two walks, and we advise you to do so. Buy a cock that has in excess that which your hens are deficient in. Breed from the separate walks, and next year intermingle the produce, keeping the original hens separate.

FOUR-CLAWED DORKINGS (*A Novice*).—In all Dorking yards fowls are sometimes bred with four claws. They are by no means uncommon in Surrey and Sussex, but we know no place where they are exclusively bred or kept. We do not consider them a distinct breed, and we should attribute to them all the properties of the four-clawed Dorkings.

BRAHMAS AS LAYERS (*P. H. S.*).—We sing the praises of Brahmas, and class them among the most useful fowls we have. We find them good layers, sitters, and mothers. We have had more, and perhaps bred more, than anyone in England, and they have never disappointed us. We follow with them the rule we do with all fowls. We do not keep old worn-out birds seldom over two years. We do not overfeed, and when they have no run we supply them plentifully with all the helps they pick up when at liberty. We have nothing to say against Houdans, of which we keep many, and which we urged on public notice twelve years ago, but as a bird of general use we consider it inferior to the Brahma. It is a good layer in the autumn, but a bad spring layer. It is a better table bird than the Brahma.

BLACK BANTAMS HENS' LEGS (*Black Bantam*). — We do not believe the gouty appearance of which you complain is hereditary, and therefore we should not hesitate to breed from them, putting the clean-legged cock to them. It is difficult to find a cure for this poultry elephantiasis, but it is much relieved by frequent applications of strong sulphur ointment.

BRAHMA POOTRAS (*H. H. S.*).—We are of opinion that the Brahmas and the Cochin-Chinas are varieties of the same breed; but some good authorities consider them distinct. We publish a list weekly of coming poultry shows. If you require fuller information write to the Secretaries.

INCUBATORS (*H.*).—There is not one that has proved satisfactory. Buy some Cochin-China hens, they will soon become broody.

ROYAL AGRICULTURAL SOCIETY (*B. & M.*).—The list of members fills a pamphlet. You must apply to the Secretary for it.

PORTRAITS OF PIGEONS.—In answer to numerous inquirers we again give a list of the numbers in which these appeared. Antwerp, No. 464; English Carrier, No. 471; Dragoon, No. 473; Pooter, No. 483; Almond Tumbler, No. 489; Barb, No. 500; Flying Tumbler, No. 509; Fantail, No. 512; Turbit, No. 523; Jacobin, No. 526; Owl, No. 533; Beard and Baldhead, No. 541; Satinette, No. 548; Archangel, No. 563; and Nun, No. 568.

PIGEON PORTRAITS (*A. Adkins*).—There are none coloured. The numbers of our Journal containing portraits are stated above.

PRIZE BLUE DRAGOONS WITH WHITE BEAKS AND RUMPS.—Mr. Frank Graham says his letter relative to mistake in awarding the prize was written before the Colchester Show took place, but not being inserted at once has led to a misinterpretation. The Show he alluded to was Nantwich, and the Judge Mr. Ridpeth. Mr. Graham's informant was Mr. Gamon, of Chester, well known as a good Dragoon fancier, and whose testimony can be backed-up by several other eye-witnesses.

WASHING CANARIES (*J. S. R.*).—Lather well with common yellow soap and a piece of soft rag. Rinse thoroughly with warm water. Remove superabundant moisture by the application of a hot soft cloth, or, better still, by passing the wings and tail through the mouth. I do. Clean warm water will harm no one. Then wrap in warm swaddling clothes, and place where it can enjoy the heat of the fire. The drying process may be completed by hand; but as the manipulation is delicate and not easily described, you must be content with simply changing the cloth when it becomes wet. Keep it warm and the bird will soon dry. When sufficiently recovered from the effects of the bath put it in a cage, cover with a cloth, and place near the fire.—W. A. BLAKSTON.

FEEDING CANARIES (*N. O. D.*).—Canaries have a habit of jerking the seed out of the hoppers when fresh filled. They all do it. It is a wasteful practice, but by management they can be made to pick up the crumbs and eat their leavings, much in the same way as a hungry child will eat for its supper the crusts it rejected for its tea. Good canary seed is the best food; add no other, and the bird will have no dainties to search for. (*R. E. H.*).—Have patience. Give a little chopped hard-boiled egg and a few grains of hempseed. It will not be long before they commence housekeeping.—W. A. BLAKSTON.

BREEDING CANARIES (*T. Dawson, jun.*).—The room without a fire will do very well provided it be light, well ventilated, dry, and free from draughts. The Norwich variety is the most prolific.—W. A. B.

BEE-KEEPERS' CLUB.—*Eve* will be much obliged if anyone could give her information about establishing in a country neighbourhood a bee-keepers' club.

AUSTRALIAN GRASS PARROQUETS (*W. K.*).—Canary seed and crumbs of bread seem to be the best food for them. They require water. A handful of fresh grass with the seeds on it should be given frequently.

POULTRY WITTICISMS.—A wag wishes to know "if W-o-r-c-e-s-t-e-r spells *Wooster*, whether R-o-c-h-e-s-t-e-r spells *Rooster*.

What is the difference between a fowl plucked bare of its plumage, and a barren moor? One is a featherless hen, and the other a heatherless fen.—(*American Poultry Bulletin.*)

METEOROLOGICAL OBSERVATIONS,

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude 111 feet.

DATE. 1872. Feb.	A.M. Barometer reduced and Sea level.	A.M. Hygrometer. Dry.	A.M. Hygrometer. Wet.	A.M. Direction of Wind.	A.M. Temp. of Soil at 1 ft.	IN THE DAY. Shade Temperature. Max.	IN THE DAY. Shade Temperature. Min.	IN THE DAY. Radiation Temperature. In sun.	IN THE DAY. Radiation Temperature. On grass	Rain.
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 28	30.137	38.1	35.2	S.	43.1	45.9	31.4	73.8	28.9	0.53
Th. 29	29.786	49.1	48.4	W.	42.6	53.5	36.5	56.2	33.0	—
Fri. 1	29.748	52.7	51.6	W.	44.6	57.2	49.2	78.0	46.9	0.030
Sat. 2	30.130	48.4	48.0	N.	45.6	57.8	44.3	74.5	39.3	—
Sun. 3	30.304	52.8	50.7	S.W.	46.2	57.5	48.1	74.3	47.6	—
Mo. 4	30.260	44.6	44.5	N.E.	46.4	60.5	39.8	100.7	38.3	—
Tu. 5	30.157	50.8	46.6	S.	45.8	59.1	43.1	97.2	36.7	—
Means	30.072	48.1	46.4		44.9	55.9	41.8	80.1	38.7	0.080

REMARKS.

28th.—Cold and foggy in morning; but bright and fine in the middle of the day; change of wind at night.

29th.—Rain in morning, and at intervals during the day; gale from S.W. in evening and night.

1st.—Warm and damp all day, occasional showers but no wind or heavy rain.

2nd.—Gradually getting more and more dark at 8 A.M., but soon clearing off, and becoming bright and spring-like.

3rd.—Rather dull morning; but very pleasant in the middle of the day.

4th.—Very damp fog early; but bright and fine all day and evening; hot sun.

5th.—Very bright and fine during the whole day, but the wind colder than yesterday.

A further general rise of temperature of about 4°, but the sluggish rise in the ground temperature is as marked as it was last week. Although the fall of rain has been very small, the air has been damp, and the soil has therefore scarcely become perceptibly drier.—G. J. SYMONS.

COVENT GARDEN MARKET.—MARCH 6.

THE markets are somewhat firmer, with a better attendance than usual at this season, partly accounted for by the fact of the large quantity of flowers now offered for sale under the influence of such open weather. The supply of out-door produce is ample, prices being nearly stationary. Hothouse Grapes are just sufficient for the demand. Strawberries are offered in limited quantities at present. The Potato trade is dull, and there are large arrivals by rail.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples..... ½ sieve	2	0	to 4	0	Melons..... each	0	2	to 0	6
Apricots..... doz.	0	0	0	0	Mulberries..... lb.	0	0	0	0
Cherries..... lb.	0	0	0	0	Nectarines..... doz.	0	0	0	0
Chestnuts..... bushel	10	0	20	0	Oranges..... ℀100	4	0	10	0
Currants..... ½ sieve	0	0	0	0	Pears, kitchen..... doz.	2	0	4	0
Black..... do.	0	0	0	0	dessert..... doz.	3	0	8	0
Figs..... doz.	0	0	0	0	Pine Apples..... lb.	6	0	10	0
Filberts..... lb.	0	6	1	0	Quinces..... doz.	0	0	0	0
Cobs..... lb.	0	6	1	0	Raspberries ..... lb.	0	0	0	0
Grapes, Hothouse.... lb.	10	0	15	0	Strawberries..... ℀oz.	2	0	4	0
Gooseberries..... quart	0	0	0	0	Walnuts..... bushel	10	0	25	0
Lemons..... ℀100	7	0	10	0	ditto..... ℀100	1	0	2	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes..... doz.	4	0	to 6	0	Leeks..... bunch	0	2	to 0	6
Asparagus..... ℀100.	6	0	10	0	Lettuce..... doz.	1	0	2	4
Beans, Kidney.... per 100	3	0	5	0	Mushrooms..... pottle	1	0	2	0
Broad..... bushel	0	0	0	0	Mustard & Cress..punnet	0	2	0	0
Beet, Red..... doz.	1	0	3	0	Onions..... bushel	2	0	4	0
Broccoli..... bunch	0	2	1	6	pickling..... quart	0	6	1	0
Brussels Sprouts..½ sieve	1	6	3	0	Parsley per doz. bunches	3	0	4	0
Cabbage..... doz.	1	0	1	6	Parsnips..... doz.	0	9	1	0
Capsicums..... ℀100	0	0	0	0	Peas..... quart	0	0	0	0
Carrots..... bunch	0	6	0	0	Potatoes..... bushel	2	0	3	0
Cauliflower..... doz.	2	0	5	0	Kidney..... lb.	0	3	0	5
Celery..... bundle	1	6	2	0	Radishes.. doz. bunches	0	6	1	6
Coleworts.. doz. bunches	2	0	4	0	Rhubarb..... bundle	0	6	1	0
Cucumbers..... each	1	0	3	0	Savoys..... doz.	0	9	1	0
pickling..... doz.	0	0	0	0	Sea-kale..... basket	1	0	2	0
Endive..... doz.	2	0	4	0	Shallots..... lb.	0	4	0	6
Fennel..... bunch	0	3	0	0	Spinach..... bushel	3	0	4	6
Garlic..... lb.	0	2	0	0	Tomatoes..... doz.	0	0	0	0
Herbs..... bunch	0	3	0	0	Turnips..... bunch	0	3	0	9
Horseradish..... bundle	3	0	4	0	Vegetable Marrows.. doz.	0	0	0	6

POULTRY MARKET.—MARCH 6.

OUR supply diminishes as usual at this season of the year, and prices are maintained. Ducklings and Green Geese are scarce.

	s.	d.		s.	d.		s.	d.		s.	d.
Large Fowls	4	0	to	4	6	Partridges	0	0	to	0	0
Smaller ditto	3	6		4	0	Hares	0	0		0	0
Chickens	2	6		3	0	Rabbits	1	5		1	6
Green Geese	7	0		8	0	Wild ditto	0	10		0	11
Ducklings	5	0		5	6	Pigeons	0	10		1	0
Pheasants	0	0		0	0	Guinea Fowl	3	0		3	6

WEEKLY CALENDAR.

Day of Month	Day of Week	MARCH 14—20, 1872.	Average Temperature near London.			Rain in 43 years.	Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	Days.	m. h.	m. h.	m. h.	m. h.	Days.	m. s.	
14	Th	Meeting of Royal Society, 8.30 P.M.	50.8	34.4	42.6	20	17 af 6	1 af 6	31 af 8	morn.	5	9 14	74
15	F		50.6	33.6	42.1	21	15 6	3 6	55 8	9 0	6	8 57	75
16	S		51.0	34.0	42.5	14	12 6	5 6	26 9	17 1	7	8 40	76
17	Sun	5 Sunday in Lent.	52.0	32.5	42.3	13	10 6	7 6	4 10	21 2	)	8 22	77
18	M	Entomological Society's Meeting, 7 P.M.	49.9	33.0	41.5	13	8 6	9 6	50 10	17 3	9	8 4	78
19	Tu	Meeting of Zoological Society, 9 P.M.	50.9	33.0	41.9	15	6 6	11 6	47 11	3 4	10	7 46	79
20	W	Royal Horticultural Society, Hyacinth Show, [Fruit, Floral, and General Meeting.	51.1	33.8	42.5	17	4 6	13 6	after.	40 4	11	7 28	80

From observations taken near London during forty-three years, the average day temperature of the week is 50.9°; and its night temperature 33.5°. The greatest heat was 69°, on the 19th and 20th, 1836; and the lowest cold 16°, on the 20th, 1845. The greatest fall of rain was 1.11 inch.

BASKET PLANTS FOR THE STOVE.

ÆSCHYNANTHUS.

THE frequent applications I have from amateurs to recommend them good plants for growing in suspended baskets, and the great want of a more intimate knowledge of plants suitable for this purpose, are my apologies for introducing the subject to the readers of the Journal. I am aware that though there are many gardeners well posted up in this subject, the majority of them, and also of amateurs, are but indifferently acquainted with many really superb kinds which not only thrive under basket-culture, but are only to be seen in perfection under such treatment. The plants I purpose noticing here are well deserving of the attention of everyone who possesses a stove.

Æschynanthuses require to be planted in a mixture of good fibrous peat, sphagnum moss, and silver sand. Before the soil is put into the basket a thick layer of sphagnum should be spread over it to prevent the soil running through. After being placed in the basket the plants should be dipped in a tub or tank of water, and thoroughly soaked. They may then be hung in their positions, and supplied with a moist atmosphere and strong heat. A liberal amount of water should be given them, for I am fully convinced if a strong heat be maintained, and if the soil is fresh and sweet, it is hardly possible to overwater them. They are nearly all natives of the hot, moist islands in the Indian seas, where they grow upon the branches of the trees on the outskirts of the forests in company with Orchids and other epiphytal plants. Although at home many people grow them in pots, they never thrive so well as when they are suspended in baskets, which is more in accordance with their natural habits. It is a remarkable fact that, although the various species of this genus when in flower rank amongst the most gorgeous ornaments of our stoves, we have had no recent additions by introduction or cross-breeding. It is not, however, possible to believe that the islands which have contributed the under-mentioned gems to our plant collections can have been exhausted by the few introductions already made.

The chief characteristics of this genus are pendant stems, and simple, entire, opposite, thick, fleshy leaves. The flowers are produced in terminal umbels, and also from the axils of the leaves near the apex of the shoots; in shape they are long and tubular, the upper part swollen, and the limb very slightly reflexed.

The following are six of the most beautiful kinds, well deserving the attention of plant-growers:—

Æ. tricolor.—Leaves ovate, dark green; flowers abundantly produced, rich deep red, with a bright orange throat, and black stripes on the limb.

Æ. speciosus.—Leaves larger than the preceding, ovate-lanceolate, pointed, and sub-erect in habit; flowers large, orange yellow, tinged with scarlet towards the top, and having the limb streaked with yellow and black.

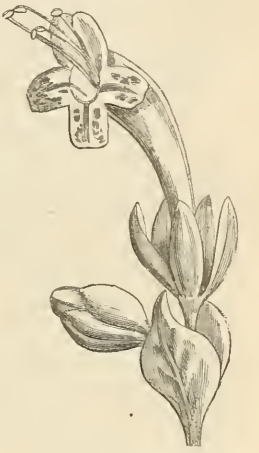
Æ. Lobbianus.—Flowers scarlet, beautifully contrasted with the dark green leaves and large purple calyx.

Æ. fulgens.—Flowers very large; the upper part of the tube rich crimson, under side of the tube and throat bright orange, the lobes of the limb tipped with velvety black.

Æ. longiflorus.—Another large-flowering species of a deep rich crimson.

Æ. javanicus.—Flowers bright shining red, rayed with yellow; calyx large, bright green, margined with red.

Æ. Paxtonii.—This is a very fine species, a native of Khoosea, and although it will grow well in a somewhat lower temperature than the others, yet I have always found it do better when treated in the same way. It has rich, scarlet flowers, very freely produced, which contrast splendidly with the deep green of its leaves. It may be grown in a pot, but its beauties are greatly enhanced when it occupies a basket hung at a moderate height.—Experto Crede.



Æschynanthus Paxtonii.

DOES THE GLADIOLUS DEGENERATE?

An article in a contemporary by my friend Mr. Lombard, of Dublin, in which he flatteringly alludes to some papers of mine on this lovely autumn flower, has led me to some thoughts upon them, which I may, perhaps, be rendering service to others by ventilating, for I fear that his remarks are likely to act injuriously on the cultivation of the flower. I cannot, I am sorry to say, disagree with him as to the disappointment one experiences in growing it. It is very trying work to find your choicest bulbs suddenly smitten with a mysterious disease against which all precautions seem unavailing; soil, climate, and situation being apparently of no account. We find it in the "cultures" of M. Souchet at Fontainebleau and Montereau, while no grower whom I have ever met in England but has to tell of losses occasioned by it; and I very much regret that Mr. Lombard should have been so disheartened by it as to give up the novelties and take to Lilium auratum instead—all very well for a few days if you have no rain and wind; but who can think of comparing the pleasure derivable from it to that of contemplating the gorgeous and lasting beauties of the Gladiolus? I can suggest no

remedy; and I fear if M. Souchet, who allows his ground to lie fallow for two years that he may occupy it on the third year with Gladiolus, finds the disease notwithstanding, I very much fear no remedy is to be applied.

But my main object in directing attention to the subject is to notice one or two remarks connected with this deterioration. In the first place it is held by some, Mr. Standish amongst others, that the disease is the result of high breeding, or rather breeding in-and-in. I know this is a very favourite way of accounting for degeneracy, and no doubt to some extent is true in many things, but I fail to see its applicability to the Gladiolus disease, for these reasons: First, that I find it in varieties which are not generally looked upon as so highly bred—I have had it very decidedly marked in Brenchleyensis the past year, and this is one of the oldest varieties in cultivation; and secondly, because what I regard as some of the very best-bred flowers that we have are not peculiarly liable to it. Let me instance two models—Meyerbeer and Madame Furtado. Now, my own experience of these varieties is, that they suffer very little from the disease. I can say the same of Shakespeare. Why, then, should these highly bred flowers be more exempt from it if, as it is said, high breeding is the cause of it? Mr. Standish anticipates much from the infusion of Cruentus blood. I confess I do not, nor do I think that the collection shown by him at Kensington gave much promise of the improvement. We may obtain a later-blooming section, but I do not think we shall secure long spikes or fine flowers by it. Cruentus never has more than three blooms expanded at a time, and this can give no advantage in hybridising. It is small, and so will not add size, while its colour is not more brilliant than some we have already. It may lead to something fantastic in shape, as in the variety named, I think, Miss Wilson, exhibited in the collection alluded to. My own impression of the varieties was that in many there was but little sign of the cross, and where there was it was no improvement.

There is another question raised as to the supposed degeneracy of light flowers. Here again I must dissent. I do not see it. I will take two representative flowers—Souchet's Madame Furtado and Standish's Eleanor Norman, one of the best he ever raised, and very like Enrydice. I have grown these for years, and I venture to say that I can produce flowers of each of these as clearly marked as when they were first introdneed. I am aware that they sport very much, and that you may get some very differently marked, but the same bulb will the next year probably produce a very clearly marked flower. It is not difficult for one who has been growing them for years to name the light varieties in a stand, say of thirty-six, which could hardly be the case if they had degenerated, as some suppose they do.

Notwithstanding its drawback, the increase of growers amongst amateurs is a strong proof of the beauty of the flower. It is like the homage paid to a beautiful woman—we pardon her capriciousness in consideration of her charms; and I fully anticipate that at the Metropolitan Floral Society's Show in August at the Crystal Palace we shall have a large number of exhibitors.—D., *Deal*.

HINTS FOR THE FLOWER GARDEN.

Now, while the propagation of plants for summer use is in full action, it is well to consider our plans in order that there may be no waste of valuable space, nor unnecessary increase of stock. It is best to arrange the colours for each season in the preceding summer, than which there is no better time, since all defects can then be noted, and changes thought to be more advantageous decided upon. A note of any intended alteration should be made at the time, as it is far more to be trusted than the record from memory of an idea dimmed by the lapse of time.

A good flower garden should be simple, as very elaborate details but too often imply confusion, and a few well-filled, well-arranged beds frequently afford more enjoyment than a larger and more pretentious design. Numerous flower beds tax the energies of a gardener to the utmost, for they are continually making a heavy and exhaustive demand upon his stock of plants and labour power in order to attain that finish peculiar to a well-managed garden. My object is not to advocate a more extensive system of flower gardening, as I think already in too many instances too much is attempted, and very little done properly. Certainly few are able to afford the plants such admirable winter culture as that advised by Mr. Peach, but if the generality of persons cannot do this, they can at least do a great deal by adopting a more systematic course of action. The number of plants required for each bed, if noted down, will be found very useful for reference, and for avoiding all chance of unnecessary propagation. In planting, the plants should be well graduated, the largest being in the centre of the beds, and the smallest outside. If the weather is at all dry, water the plants immediately after they are put in the ground. I have had plants seriously affected for an entire season through being left unwatered and exposed in their fresh quarters to bright sunshine for an hour or two. If obtainable a mulching of rough leaf mould should be used as soon as possible after planting, to retain the moisture about the roots. This, however, is sometimes objected to, as it looks untidy and attracts the birds, especially during a dry season. When, therefore, mulching cannot be used the surface soil should be stirred frequently, and, if it is dry, thoroughly watered, so that the water may reach all the roots.

The growth of the plants should be regulated in a manner suitable to the position they occupy—that of flowering plants by pegging, and of fine-foliaged plants both by pinching and pegging. Never resort to the barbarous practice of clipping the growth with shears. What beauty is there in a row of Vinca or Gnaphalium after it has been thus pruned to a formal outline, and the surface presents a bristling array of the stumps of shoots and halves of leaves? In a flower garden, where the aim should be to impart an air of the most exquisite neatness and finish, such rough practice is entirely out of place. When the flower-beds contain attractive plants all necessary work among them should be done as early in the day as possible, so as to have everything in perfect order later in the day.

In the arrangement of the colours it is desirable to introduce some novelty if it can be done, as the annual repetition of masses of red, blue, yellow, pink, and white is apt to become tame and monotonous. Gardens sheltered from high winds may be planted with tropical plants, and much may be done everywhere by the introduction of carpet-beds—that is, beds having a groundwork of some decided shade of colour, with plants of another colour interspersed either irregularly or else arranged in a design suitable to the outline of the bed. I am of opinion that the introduction of Beet into the flower garden is erroneous, not because it is a culinary vegetable, but rather because we possess in Coleus Verschaffelti a plant of easy culture and most chaste and refined beauty; its rich, dark foliage being altogether superior to the vulgar glossy metallic hue of the Beet. The easy culture of Beet may cause it to be a useful plant in those gardens which have extensive flower-beds and a paucity of glass houses; but then such a state of things is in itself an error. Each department of a garden should be in correct proportion to the other parts, and unless this "balance of power" be maintained there will be failure and confusion. It is, of course, most praiseworthy on the part of those having insufficient means of procuring a supply of plants to adopt the best makeshift they can, and looked upon from such a point of view even Beet is a desirable plant; but then it ought not to take rank with those plants which are altogether superior to it.—Edward Luckhurst.

SUCCESSIONS OF VEGETABLES.—No. 7.

Portugal Cabbage.—This most delicious vegetable ought to be grown in every garden. The parts used are the midribs of the leaves and the hearts, and of these the latter are particularly delicate and agreeably flavoured. The midribs of the leaves are white, fleshy, and solid, and when stripped and served like Sea-kale make a very tender and delicious vegetable.

If a supply is required for early summer, the seed should be sown about the 20th of August, and the plants pricked out early in October into a frame, where Cauliflowers may also be placed, and the whole batch subjected to the same treatment as the latter usually demand. They should be planted out 2 feet apart in a rich soil early in April, and will be found to come in some time during June, and continue in season for six or eight weeks. For a late summer supply the following is the treatment. Sow the seed early in March on a gentle hot bed, give a free circulation of air and plenty of light until the plants have appeared and brought forth their first rough leaves, then plant them out in rows 2 feet apart, and at an equal distance from each other. It is a good summer and autumn vegetable, but very susceptible of frost.

Milan Cabbage.—It is a Borecole, in growth much like the Cottagers' Kale, but with plain bluish green leaves. It produces a great number of sprouts in the spring time, which

may be increased by cutting off the heads. Should be sown at the beginning of April, planted out at the end of June, and otherwise treated as the Borecoles.

ONIONS.

A most important vegetable, but one that causes its growers great anxiety on account of its liability to the attacks of the Onion fly. The varieties are many, but the best I have grown are the following:—

Danver's Early Yellow.—A mild-flavoured kind, growing sooner to its full size than any other, and preferable to the White Spanish on account of its larger proportions and better keeping qualities.

For autumn and early winter use—

Reading.—A large heavy-cropping variety of White Spanish.
Nuneham Park.—Larger and a better keeper than the ordinary White Spanish.

For early winter use—

Bedfordshire Champion.—A large type of, and better cropping and keeping variety than White Globe.
Brown Spanish.—Firm and flat; a good keeper and heavy cropper.

For winter use—

Deptford or Strasburg.—A form of Brown Spanish; a good cropper, and keeps well.
James's Keeping.—An oblong, strong-flavoured, good-cropping kind. It keeps splendidly, and is the best of all for winter.
Blood Red.—The latest-keeping of all sorts, not very large but strong-flavoured.

Of these, an ounce of seed to the acre will be found sufficient. For small gardens I would recommend only three kinds, Danver's Early Yellow, Bedfordshire Champion, and James's Keeping. For pickling, as well as for salads, Early Nocera will be found very useful, as it is early and mild-flavoured. The best, however, for this purpose is Two-bladed, a small brown-skinned variety. For autumn sowing there are these two mild-flavoured sorts, Tripoli Flat Italian, large and handsome, and White Lisbon, the latter of which is excellent for drawing in a young state during the spring. Of Giant and Mammoth, recently introduced kinds, I know nothing, and would be glad if any of your readers would give their experience of them.

When the ground has ceased to be sodden, that is in the early part of March, then is the time to sow Onions. The ground should not have been just manured, but this should have been done the autumn before with well-decayed material, and the ground trenched roughly to stand the winter, or if the soil is stiff, ridged instead. In February, during dry or frosty weather, the surface should be smoothed, and the plot divided into beds 4 feet wide, with alleys of 1 foot in width. On these beds place well-decayed manure to the depth of 2 inches. A day or two before sowing, the beds should be dressed with a mixture of soot and lime (two parts of the former to one of the latter), laid on at the rate of one peck to 20 square yards, and then pointed over again. After this apply to the surface, at the rate of ten gallons to 20 square yards, ammoniacal liquor of the gasworks, diluted in six times its volume of water. Soil from the alleys should now be thrown over the beds, so as to cover them an inch deep, and then be trodden very firm. The surface must be raked, and afterwards the drills made at 3 inches distance from the sides of the bed, and six from each other, and just deep enough to allow half an inch of soil above the seed. An ounce of seed will be sufficient for a bed of 9 square yards. Cover the seed with soil, tread it firm, again rake lightly, and then go over the whole with a one-handed garden roller. Mark off the beds neatly, and dress the surface of the alleys. These last, by the way, may have a border of Tom Thumb, All the Year Round, or any other kind of moderate-sized Lettuce.

As weeds appear they should be rooted up with the hoe, or, if this cannot be safely attempted, by means of hand labour. The plants should be thinned first to 2 inches apart, and lastly to 4 inches, when all weeding must be done with the hand. After being finally thinned they should receive a dressing of two parts of guano and one of salt, applied at the rate of one peck to 30 square yards. When the oldest leaves begin to look yellow break down the stems to about 2 inches from the bulb, as by so doing the size of the bulb is increased. When ripe take them up, dry and clean them, and store them in as cool a place as possible, provided it be not frosty. They can be strung and hung up if desired.

Onions require a sunny open situation, and may remain unwatered. If, however, a plentiful supply of water can be given them twice a-week, and continued during very dry weather, it may be done. The distances generally recommended are 9 inches between the rows, and 5 or 6 inches (obtained by thinning) from plant to plant. I have tried both, and have found the smaller distance the preferable. For pickling, Onions should be sown in the beginning of April, only rather thicker than in the other case—1 ounce to 6 square yards. In other points their treatment is the same.

Those for drawing in spring and summer should be sown on the 10th of August, and planted out towards the end of March in beds 4 feet in width previously prepared. Place them 3 inches apart in rows 4½ inches from one another, and water them until they are established. In drawing, every alternate row and every other plant in the remaining rows should be taken up, thus leaving ample space for the development of those that are left.

Of small Onions for salads, the Silver-skinned and Nocera are the best. They should be sown monthly from February to April, and placed in frames in a gentle heat. In July the monthly sowings may be begun again and continued until November. Those sown after August may be put in boxes for the sake of the convenience it affords for placing them in heat when the cold weather comes on. The temperature they require is one of 45°. I have been told that by rubbing a few needle-like Onions round the inside of a bowl, and then withdrawing them, a good flavour is given to the salad placed in afterwards.—G. Abbey.

THE KENTISH AND MORELLO CHERRIES.

The abovenamed are, perhaps, the most useful varieties to cultivate in any garden. The Morello is very well known and universally cultivated, but not so the Kentish. This variety is not often grown under any form. It is, nevertheless, an exceedingly useful sort, and well worthy of notice. I grow it as a pyramid on the Mahaleb stock, and it bears abundantly. It ripens early, and for this reason is very useful for culinary purposes before the Morello comes in. The tree is of free growth, and makes a very handsome pyramid.

The Morello is a late Cherry, and is probably more cultivated than any other sort. I have grown it in three different ways, and have been successful in all of them. No other fruit is better adapted for furnishing a north wall than this. Certain varieties of Pears, Plums, and Apricots have been recommended for this purpose, but as far as I am aware, it cannot be said that anything like permanent success has attended the cultivation of any of them under such circumstances. If any of our correspondents have been successful in growing any of the above on a north wall, the record of their success, and the circumstances attending it, could not fail to be of much use to all practical men.

As regards the Morello, it can be cultivated on a north wall with a certainty of success, and will succeed in any description of soil. The only instance I know of it failing was in the case of a tree planted in a clayey loam with a heavy clay subsoil. Probably defective drainage was the cause of this, more especially as a border under a north wall seldom receives any benefit from the sun. Effective drainage is therefore the more necessary.

Wall-trained Morello Cherries require rather different treatment as regards pruning and training than other fruit trees. All the fruit is produced from the young wood of the previous year, and a little management is necessary in order to cover the wall regularly with bearing wood, especially when the trees are old. The young wood should be laid-in rather more thickly than is usual with other sorts of Cherries, but the shoots should not on any account be crowded too closely together. Cherry trees of all sorts are liable to be attacked by the black aphis on the young growing shoots, when the leaves curl, and make it very difficult to dislodge them. A careful watch should be kept for its first appearance—that is, before the leaves begin to curl, and then water in which soft soap has been dissolved should be applied with considerable force through a syringe or garden engine. If the pest has firmly established itself, the only way to get rid of it is to take the shoot in one hand, and with a brush which has been dipped in the soft-soap mixture brush the leaves over. Gishurst compound at the rate of 3 ozs. to the gallon of water is also an effectual remedy.

Pyramid trees of this variety worked on the Mahaleb stock bear most abundantly; and as far as my observations have gone trees trained in this manner are not so liable to be attacked

by insect pests as wall trees. The treatment of pyramid trees in the early stages of their growth, up to, say six or seven years from the bud, is very simple, merely training the tree to a central leader and pinching the young growing shoots twice in the season. A little management is, however, necessary here, as the trees are apt to become too much crowded with wood, which excludes light and air from the centre of the trees. When this is the case thinning the branches is necessary. In practice I find it unnecessary to pinch the young shoots after the tree is a certain age—about six years. After it has reached this age, and has been properly trained, a very little attention, such as thinning and regulating the shoots, is all that is necessary. It will also be necessary to net the trees when the fruit is ripe to protect it from marauding birds.

Another method of growing this fruit, and which I found convenient here, is a sort of espalier system. I had a few trees which were planted against a low wall; and this wall having to be removed to make way for some improvement, I planted the Cherry trees against some iron hurdles, and with the aid of some sticks trained the shoots along them much in the same way as they were before on the wall. Some fruit was obtained the first year, and the trees have yearly borne good crops since that time—seven or eight years ago. The summer treatment consists in allowing the trees to grow much their own way, and in autumn or winter removing some of the old wood and tying the young bearing wood in to replace it. There is no difficulty in protecting such trees from the birds, as nets of some description can easily be thrown over them. I generally use the old herring nets, which keep the birds out and let light and air in.—J. Douglas.

CAMELLIAS AND THEIR CULTURE.

A little more than a century ago one might have said in half a dozen words all that was needed, in fact, all that could be said respecting the Camellia; but how wonderful and interesting has its progress been up to the present time, when it furnishes our conservatories during the dull winter months with myriads of blooms of various colours.

The first species cultivated in European gardens was the Japanese Camellia, C. japonica, said to have been introduced by Robert James, Lord Petre, in 1739; this was the single red or normal form of the species. No double-flowered variety appears to have been introduced till 1792, after which date came others, which have now, through the exertions of skilled cultivators, provided us with numerous and varied forms of this lovely plant; indeed, there are so many varieties, that the amateur who can accommodate only a dozen plants is unable to determine which to have without advice, and this is the reason we so often see the question asked. My intention, therefore, is to name a few varieties that I think worthy of cultivation, even in the most limited space.

No one, if possible, should be without the lovely Mathotiana alba, gem of white Camellias; the flowers when fully expanded are of very large size, and beautifully imbricated to the centre. I should be glad to hear through any of your correspondents if there are two varieties of this. In the collection here there are a few small plants bear single blooms, while a large plant produces double ones. There is no distinguishable difference in the foliage. Does this arise from the stronger constitution of the plant? I should fancy not. I am inclined to think the cause is a difference of variety, otherwise why should not the others produce the same kind of flowers, even if they were smaller? There is also the crimson Mathotiana, which is very good. But to the first-named I would add Jenny Lind, Cup of Beauty, Countess of Derby, Candidissima, Monsieur de Offay, Storyi, Lady Hume's Blush, Fimbriata, Maria Teresa, Imbricata, and Countess of Orkney. The buds of the last-named when in a half-open state present a most beautiful appearance. It is rather hard in opening, but when fully expanded lasts for a considerable time in perfection. Where space permits I would add the following six—namely, Jubilee, Wilderi, Empereur de Russie, Marchioness of Exeter, Valtevaredo, and Reticulata. The last is the largest-flowering of the species, the flowers often measure 6 inches and more in diameter, and are not unlike those of a Pæonia. Anyone having but limited accommodation will find in the above nineteen varieties a very choice selection. Of course where space permits, others of the highest merit can be added with advantage.

With regard to the culture of the Camellia, enough has been said from time to time, but the question is often asked early in the winter, Why do my Camellia buds drop off? Certainly this must result from bad condition in some way. In many cases, though perhaps not in all, I think it arises from the following cause—that they do not receive proper attention during the hot dry months of summer. Being in general placed in some shaded spot they are often forgotten, and consequently become dry at the root. This causes the wood to harden, and the Camellia not being a plant that quickly shows signs of suffering, the dryness is not perhaps noticed until the plants are removed to their winter quarters. Then as soon as discovered the water is supplied freely till the ball becomes soaked. What follows? The roots at once take up fresh nourishment, and supply it to the plant, the result is a swelling of all the joints, and the buds are thrown off before they can become developed. It is, therefore, always essential to give a regular supply of water at the roots during summer, with an application from the syringe in the afternoon, so as to keep the foliage clean and fresh. Attention in this respect will prevent many a disappointment at the blooming season.—C. J. W.

WILD FLOWERS AT HAWKHURST, KENT.

We certainly never can have had so early a season for wild flowers as the present. I have gathered, up to the 4th of March, the following :—

Jan. 27th.	Capsella Bursa-pastoris	Feb. 23rd.	Potentilla fragariastrum
	Stellaria media		Arenaria trinervis
	Veronica Buchanani		Petasites fragrans
	Poa annua		Viola odorata
	Lamium purpureum	Mrch 2nd.	Anemone nemorosa
	Ulex europæa		Mercurialis perennis (female)
	Mercurialis perennis (male)		Vinca minor
	Bellis perennis		Viola canina
	Leontodon Taraxacum		Narcissus Pseudo-Narcissus
	Primula vulgaris		Adoxa moschatellina
	Veronica agrestis		Cardamine pratensis
	Euphorbia Peplis		Taxus baccata (male)
Feb. 12th.	Corylus Avellana		Ulmus campestris
	Veronica polita		Oxalis Acetosella
	Cardamine præcox		
Feb. 23rd.	Ranunculus Ficaria		

I should be glad to hear what plants have been found in bloom in other counties. I have omitted to name the Willows, as I do not know the genus sufficiently well to discern the species.—Fraulein, *Botanist*.

DEATH OF MR. THOMAS INGRAM.

It is our painful duty again to record the loss of a horticultural veteran in Mr. Thomas Ingram, formerly gardener to Her Majesty at Frogmore. He died on Saturday last at Upton Lodge, Slough, full of years, and, we may add, full of honours; for throughout his long and useful life he was respected by all who knew him, not merely for his skill as a gardener, but also, and higher, for his worth as a man. Those gardens over which he so long presided, those improvements in fruits and flowers which he effected, are standing proofs of his ability; and the esteem in which his personal character was held by horticulturists of every grade has been so widely admitted, that more than allusion to it seems superfluous.

We believe Mr. Ingram was born in England of Scotch parents, and in early life was sent to Scotland, under the care of his paternal uncle, who was parochial schoolmaster at Hutton, in Berwickshire. There he passed his school days in the house of his relative, who for a long series of years enjoyed the well-marked reputation of being an accomplished scholar, and one of the most distinguished teachers in the south of Scotland. Having finished his education at Hutton he came to England, and after passing through the preliminary training of a young gardener, he was appointed to the gardens at Windsor in the year 1815, so that he served four kings and queens of England, a boast, perhaps, that no other gardener could ever make, and one which Her present Majesty could well appreciate. On the occasion of the first visit of the Princess of Wales, then the Princess Alexandra, at Windsor, the Queen accompanied by the Princess visited the garden at Frogmore; Her Majesty, having sent for Mr. Ingram, said to him in that kindly manner which she always shows to her old servants, "Mr. Ingram, I wish to introduce you to the Princess Alexandra." "This," said Her Majesty to the Princess, "is Mr. Ingram, who was gardener to Queen Charlotte, and he has been here ever since." Mr. Ingram used to say that the Princess looked at him with amazement that Queen Charlotte's gardener should be still in the flesh.

A few years ago (1865), when Mr. Ingram completed his

fiftieth anniversary as gardener to Royalty, a number of his friends presented him with a handsome silver tea and coffee service, a gold watch and chain, and a purse of sovereigns. A report of the presentation was given in our columns at the time (August 1st, 1865), and on that occasion Dr. Hogg, who was the Chairman of the Committee, said, "For fifty years you have served the Royal Family of this country, with fidelity to them and honour to yourself—for fifty years you have occupied a prominent position in an arduous situation—one requiring the exercise of the greatest discretion, coupled with decision and courtesy. In that situation you have, doubtless, had to exercise much self-denial, and, while in the performance of your duty and your high trust, to give offence when you would rather have conveyed pleasure. For fifty years you have adorned the profession of horticulture, and assisted in no small degree in promoting and fostering its pursuit; and for far upwards of fifty years you have lived a life that has endeared you to many friends, and made you respected by all who know you; and it is for these reasons that we are now here to present to you these testimonials from your friends, whose names are inscribed on the accompanying roll.

"In the good providence of God you and Mrs. Ingram have been spared to live far beyond the allotted span, and it is our earnest wish, and that of all your friends, that you both may yet be long blessed with the enjoyment of each other's society, and to receive the hearty congratulations of all those who have the privilege of your acquaintance."

ROYAL BOTANIC SOCIETY'S SHOW.

The first spring Show of this Society was held on the 13th inst. in the new glass-covered corridor leading from the conservatory to the road—a structure 200 feet long by 15 wide, and well suited for the purpose. There was, besides, a tent along the side of the conservatory, so that the whole exhibition formed in fact a cross. The day was one of the finest we have had even during this unusually mild spring, and the Show well worthy of a numerous attendance of visitors, among whom were Her Royal Highness the Princess Beatrice.

Hyacinths were the main feature, and of these Messrs. Veitch exhibited in the nurserymen's class a magnificent twelve, which took the first prize without opposition. The spikes were quite equal to any we have ever seen, and in some of the varieties, Ida for instance, probably superior. The kinds were King of the Blues, De Candolle, General Havelock, Czar Peter, La Grandesse, Grandeur à Merveille, Koh-i-Noor, Solfaterre, Vuurbaak, Macaulay, Haydn, and Ida. In the amateurs' class Mr. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, Ilford, was easily first with excellent spikes of Prince of Wales, Charles Dickens, King of Blues, Baron Von Tuyll, Czar Peter, Von Schiller, Fabiola, Haydn, Koh-i-Noor, Ida, Grandeur à Merveille, and L'Innocence. Several of these were very much finer than we usually see in amateurs' classes. Mr. Stephenson, Tredegar Place, Bow, was second with very good spikes; Mr. Weir, gardener to Mrs. Hodgson, Hampstead, third; and an extra prize went to Mr. Rowe, gardener to Mrs. Lewis, Roehampton. Both Messrs. Veitch and Mr. William Paul exhibited splendid collections of one hundred pots, the spikes in which were extremely massive.

Of Tulips, again the only exhibitors in the nurserymen's class were Messrs. Veitch, who had the first prize for fine pots of White Pottebakker, Keizers Kroon, Vermilion Brillant, and Fabiola. In the amateurs' class Mr. Weir, Mr. Rowe, and Mr. Stephenson carried off the prizes in the order named. Messrs. Veitch exhibited in the miscellaneous class a numerous collection of Tulips and excellently bloomed Narcissus.

For miscellaneous plants in flower, Mr. Ward, gardener to F. G. Wilkins, Esq., Leyton, took the first prize with an extraordinarily fine collection, in which there was a specimen of Genethyllis Hookeri forming a bush nearly 4 feet in diameter, admirably bloomed. Together with this were fine specimens of Phajus grandifolius with eight spikes, Odontoglossum cristatum, O. Blumtii with five fine racemes, O. bictonensis, the rich yellow-flowered Azalea sinensis, the plant large and absolutely covered with bloom, Anthurium Scherzerianum, and other plants. Mr. G. Wheeler, gardener to Sir F. H. Goldsmid, Bart., Regent's Park, was second with Acacia Drummondi, large and in excellent bloom, together with other plants. From the same exhibitor and Messrs. Lane came groups of Azalea amœna, Rhododendrons, Deutzias, and other forced shrubs. Mr. Wheeler likewise sent a Lomaria gibba and other Ferns, a group of Palms, and one of fine-foliaged plants, as well as small plants of Indian Azaleas.

Chinese Primulas, well grown, and fine in colour, were shown by Mr. Goddard, gardener to H. Little, Esq., Twickenham, Messrs. Dobson & Sons, Isleworth, and Mr. James, gardener to W. F. Watson, Esq., Isleworth. Prizes were awarded to the exhibitors in the order in which they are named, as also to Messrs. James, Dobson & Sons, and G. Wheeler for Cinerarias, those from Mr. James being very good. Excellent pots of Lily of the Valley were shown by Messrs. Rollisson, and of Deutzia gracilis by Messrs. Lane, of Great Berkhampstead. The plants were 2½ feet in diameter, and in profuse bloom. Messrs. Lane likewise sent dwarf Rhododendrons in pots very well flowered, Roses, and a collection of Camellias.

Mr. Ward, gardener to F. G. Wilkins, Esq., sent half a dozen well-grown Heaths. From Mr. William Paul, Waltham Cross, came a choice collection of Camellias beautifully bloomed in small pots, cut flowers of Camellias and Roses, and Waltham White Chinese Primula. Messrs. Rollisson, of Tooting, contributed a collection of Orchids, Palms, and other plants; Mr. Wiggins, gardener to W. Beck, Esq., Isleworth, a group of Dendrobium nobile; and Mr. Needle, gardener to the Comte de Paris, Twickenham, a collection of Ophrys and Orchis. Cyclamen persicum was exhibited in fine collections by Mr. Goddard, Mr. Williams, Mr. James, and Mr. Wiggins, the last-named taking a floral certificate for C. persicum fimbriatum with white flowers neatly fringed at the edges. Mr. Ware, Hale Farm Nurseries, Tottenham, sent one of his very beautiful groups of spring-flowering plants, together with a collection of Succulents. From Messrs. Carter & Co., High Holborn, came a basket of scarlet Geranium Velocipede, which promises to be a desirable kind.

Among the new plants from Messrs. Veitch, Rollisson, and Williams the following received certificates — viz., Veitchia canterburyana, Kentia australis, and Kentia Forsteriana from Messrs. Veitch and Mr. Williams; also Agave Seemanni, Toxicophlæa Thunbergi, Tillandsia Lindeni, and Davallia Tyermanii from the latter exhibitor. Mr. Ley had also a certificate for the last-mentioned plant under the name of Humata Tyermanii. Martinezia erosa and Calamus verticillaris from Messrs. Rollisson were also certificated. To Mr. William Paul, floral certificates were given for Hyacinth Lord Mayo, violet plum with a white throat, very distinct and pretty; and Ornement de Rose [des Roses ?], with large pale blush bells faintly streaked with rose down the centre of each petal. Reine de Naples, bright rose striped with carmine, was lively in colour, and, no doubt, will form good spikes. A certificate was likewise awarded to Mr. Reed, Twickenham Ait, for Polyanthus Princess of Wales.

THE HELIOTROPE FOR WINTER FLOWERING.

Where cut flowers are in great demand during the winter, I know of no plant that would be more serviceable than the above, especially where the means are limited for growing other things. But to have it in quantity it requires to be planted out, the blooms also coming much finer. We have here (Bisbrook Hall, Uppingham), an old plant growing against the back wall of a cool vinery (the wall, of course, being very little used for anything else) that gives a good supply of flowers all through the winter, which amply repays for the little trouble bestowed upon it—which is simply keeping the shoots pinched back during the summer, and tying-in others to fill up vacant spaces.—Henry Mason.—(*The Gardener.*)

Prolific Hyacinth.—Seeing in last week's Journal an account of a prolific Hyacinth with four heads, allow me to mention that I have now in bloom in a glass a Princesse Clotilde Hyacinth, imported direct from Holland, wi h six fine heads, all growing from the crown. Each would be a fair head by itself, and one is particularly fine. The bulb is very small.—L. A., *Newmarket House, Co. Cork.*

FINE-FOLIAGED PLANTS FOR TABLE DECORATION.

Some people do not care much for foliage plants on the dinner table, thinking they look dull for the want of flowers, but to my mind nothing looks better than well-grown plants of the above kinds. I always grow my plants in pots of a size to drop into my fancy ones for the table, then I cover the surface (after they are in the fancy pots or pans) always with either silver sand or growing Selaginella denticulata.

Ananassa sativa variegata, or Variegated Pine Apple, is a plant we constantly use on the table here. It is light and elegant-looking, and will stand keeping in a room for a long time. We grow ours in a mixture of loam, peat, manure, and leaf mould, with a little silver sand, and always keep them close to the glass and in the full light of the sun, as that is the great secret of getting them up to a good colour. They are propagated by cuttings taken off the crown; let them lie and dry for a day or two, and then put them into a good heat,

and they will soon strike, and you will have a succession of young plants.

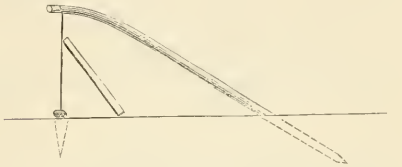
Croton angustifolium, or the Fountain Plant, as it is called in India—is one of our most graceful plants for table decoration. It should be grown in rich loam, peat, and sand, and requires plenty of water, but must have good drainage. Crotons, like Ananassas, must be kept close to the glass and in the full light of the sun; they also like a good moist heat, and can be very easily propagated by cuttings struck in a little silver sand.

Brexia spinosa.—Young plants of this look very handsome on the dinner table or in the drawing-room. They should be grown in loam, peat, and sand, and should have plenty of water all the year round. The cuttings strike quickly if kept close till rooted.—(*The Gardener.*)

MOUSE TRAP.

The cheapest, simplest, and most easily made trap for garden mice is set in the following manner.

Get a stick like a mole-trap stick (stout, and about 4 feet long), and a peg 10 inches long; bore a hole through a Broad Bean, put a piece of fine twine through the Bean, tie one end to the small end of the mole-trap stick, and the other to the larger end of the peg, drive the latter overhead in the ground with the Bean lying on the surface. Thrust the mole-trap stick in the ground slanting, so as to bring about 12 or 15 inches of string quite tight, take a flat roofing tile and rear it against the string so that it may fall with its centre about over the Bean.



It is not necessary that the mole-trap stick should spring all you have to do is to have 12 inches of tight string to rear the tile against. I have made use of straight pieces of wood for the purpose. It saves trouble in resetting if you wind half a yard of the string round the mole-trap stick, because the mouse bites off a portion each time. You can at each resetting wind off an inch or two to supply the place of what has been nibbled off.

To fix the string to the peg which holds it in the ground, make a running noose, pass the string, after the noose is made, twice round the thick end of the peg, about half an inch down, and draw the noose tight; this will hold without a notch. The mice are caught only in the night. The ground on which the tile is to fall should be flattened down so that the tile may fit closely down on it when it falls. The traps should be set every 8 yards, or less, by the rows of Peas as soon as they are sown. I have caught scores of mice in this way.—Broad Bean.

KEEPING GRAPES IN BOTTLES OF WATER.

One of the vineries under my charge, and in which the Grapes were ripe at the early part of July last year, is planted entirely with Black Hamburgh and Black Alicante. The latter is allowed to hang some two months longer than the former, and I find that in consequence of being so treated it improves very much in flavour. I cannot say that I approve of growing these two sorts together, as the Black Alicante requires a higher temperature than I like to submit the Black Hamburgh to; but I nevertheless continue to practise it, as it enables me to send Grapes to table for a longer time than I otherwise could.

On the 10th of last October there were some forty bunches of Alicante still hanging, and I wished to get them cleared off in order to prune and rest the Vines. I obtained a sufficient number of soda-water bottles, filled them up with water, and put some pieces of charcoal into each. These I tied up to the wires of a late vinery containing a crop of Lady Downe's Grape, and having cut off the bunches of Alicante, conveyed them thither, and inserted the stalk of each of the bunches into its respective bottle. Several of these bunches still remain. Their berries are for the most part plump, though some are beginning to shrivel. They are, however, deficient in flavour, being sweet enough but watery. I have not found the berries crack, nor was I before the early part of February obliged to cut out any on account of their imperfection. The bottles were allowed to swing clear of the wires, and the weight of the bunches drew the bottles to such an angle as to let the bunches hang freely down.

I am sorry to say I cannot give so favourable a report of the Muscat of Alexandria and White Tokay. These were ripe in August, 1871; and the first week in January, 1872, I treated several bunches of each variety in precisely the same way as I did the bunches of Alicante. But the berries of the Muscat of Alexandria soon began to turn brown, so that I have had to keep continually cutting them out, and now the remainder are not fit for table. White Tokay keeps better, but a few of the berries turned brown, though not to the same extent as in the case of the Muscats. White Tokay retains its flavour very well, and the bunches are still fit for table. I have kept the Alicante the same way for two seasons, and with the same results. The three varieties named are all I ever tried to keep in water. —Charles Roberts, *The Gardens, Stoney Field, Newcastle, Staffordshire.*

CULTURE OF THE LUCULIA GRATISSIMA.

Were I purposely to look through a large collection of greenhouse plants I do not think I should find a more worthy subject upon which to make a few remarks than the Luculia. Beautiful as are most of our greenhouse plants, both deciduous and evergreen, the Luculia, when found growing and flowering well, is the queen of them all. It bears red or pink Hydrangea-like flowers, almost perfect in shape, and very fragrant, in trusses of from 6 to 10 inches in diameter, accompanied by a long lightish green leaf of graceful and vigorous appearance. It flowers in the autumn and winter months, and is therefore doubly valuable; indeed I know of no greenhouse plant which can at that time of year approach it in beauty and duration. It will not, however, admit of every sort of treatment, and this may in some degree account for its being so seldom met with in a very flourishing condition. The greatest difficulty appears to lie in rearing the plant until it has attained a decent size; but if once established it will with ordinary care do well.

Cuttings may be made in the usual way, but the preparation for them must be somewhat different. I have rooted them very successfully in a fine mixture of the best silver sand and peat, the surface being covered with a layer of the same sort of sand. Prepare the pot with plenty of good drainage, and allow a good bottom heat in a propagating frame or under a hand-glass. Take care the cuttings do not flag from the effect of the sun, or in consequence of becoming too dry, but at the same time do not let them be too wet. Pot them off as soon as rooted, and keep them in the same structure till established; then take them to more airy quarters. A good time to propagate is from March to June. Such shoots as are getting moderately firm, and those of medium growth, are better for this purpose than the most robust.

I find it is not a good plan to coddle the Luculia in a heated structure, but rather after it is well established treat it more as a greenhouse plant. Neither is it wise to confine this exceedingly beautiful plant to pot-culture, but instead of so doing plant it out in a greenhouse or conservatory, so that it may have room for developing its growth and flowers.

When I came to Hatfield in 1870 I found a plant of the Luculia in the conservatory border. It was then and is now doing very well. It is about 9 feet high and 6 feet through, and has flowered magnificently for two winters. The soil in which it is growing is a mixture of fibry loam and peat, silver sand, and some charcoal, not more than a foot in depth, but nevertheless with abundant drainage. As soon as this plant has done flowering I keep it rather dry for a month, then prune the shoots back to moderately firm wood, and allow the plant to put forth its shoots as Nature prompts it. When this happens I begin to water, and as its growth increases in vigour so do I increase the quantity of water. All through last summer I continued to have it watered regularly and plentifully once a-week until towards September, when it sets its bloom, and then I changed to manure water, which acted upon it most beneficially until it ceased to flower. After this water was gradually withheld.

I shade the plant from the strongest sun, and syringe the

foliage above and below daily in order to prevent the attacks of red spider and thrips, to which it is very liable. That it does not admit of coddling I found out years ago, but was afraid to plant it out until advised to do so by a friend. Its beauties are seldom developed by pot-culture, and though I have seen a few good plants grown in that way, they were not to be compared with those planted out. The temperature in which the plant is growing is that of a warm greenhouse.—Thomas Record.

GYNERIUM ARGENTEUM.

The genus Gynerium comprises some five or six species, all remarkable for their large and showy feather-like panicles of bloom. It belongs to the tribe Arundineæ, and the species which our illustration faithfully portrays is popularly known as the Pampas Grass on account of its being a native of the pampas, or plains of South America.

Gynerium argenteum was first introduced into this country about 1843, since which time it has steadily increased in popularity, and is now extensively cultivated; indeed, no person can see this majestic Grass for the first time without immediately becoming enamoured of its beauties. This plant has proved itself sufficiently hardy to withstand our ordinary winters without protection, yet during exceptionally severe frosts, and especially on wet low-lying soil, I have seen it completely killed. My advice, therefore, is, to insure a recurrence of the beauties of the Pampas Grass, always give it some slight protection, such as straw or any similar material, and where practicable cover the ground round the roots with some short litter. The advantage to be derived from this is twofold—in the first place it insures the life of the plant; and secondly, the very fact of assisting the plant during winter enables it to start into growth in spring without any serious injuries to restore, and with its vigour unimpaired, the result being that the panicles of bloom appear much earlier than usual. Thus the fortunate possessor of a good specimen is enabled to enjoy the sight of its splendid culms, which rise to the height of from 6 to 12 feet, or even more, before the frost and rain combine to destroy their effect, which is too frequently the case when they bloom very late, especially in the vicinity of towns, where smoke and soot enter the lists with frost and rain to mar their beauty.

Gynerium argenteum.

It is unnecessary to extend these remarks to any great length, as the plant is so well known; but I have frequently seen the plant growing upon poor soils, where it presents a starved and by no means a prepossessing appearance. I would, therefore, impress upon those who are about to plant the Pampas Grass, the fact that a preparation for this subject composed of good rich loam and well-decomposed manure, with some rotten leaves added, will be of the greatest service, and materially add to the beauties of the plant by increasing its strength. In planting, it will be much to the advantage of the plant if it be placed in such spots as are sheltered in some degree from violent currents of wind, and also to select the two sexes if possible, for the Gynerium is a dœcious plant—that is, the male and female flowers are produced on separate plants; in the first the culms are erect and pure white, in the second more spreading and tinged with purple—so that a diversity of appearance may be produced in this way. — Experto Crede.

SOME PREDATORY INSECTS OF OUR GARDENS.—No. 27.

It is rather an unfortunate thing for entomologists, that apart from the ridicule which attaches itself in the minds of many persons to the pursuit of paltry despicable "animals" or vermin, there is much that is laughable in the methods they sometimes pursue in order to secure their game. Thus: fancy the amazement which overwhelms a little rustic throng in a village, a throng made up, indeed, chiefly of old women and children, with a few gaping hobbydehoys, when they behold a grave-looking man, dressed like a gentleman, mount a bank behind one of their cottages, and begin to assail the thatch with his walking-stick. Had he stooped down, and hunted in the thatch, they might have thought he was hunting for concealed treasure; but to beat it—how extraordinary! Surely he must be mad, only mildly so, however, and the villagers regard him with pity mixed with some curiosity. The truth is, however, that he is seeking for moths of the genus

Depressaria, these having a fancy for retreating into the shelter of thatch when the weather is cold.

These little fellows, sometimes called "Flat-bodies" in our vernacular, are amongst the pigmies of the moth tribe, the largest of them scarcely measuring an inch when its wings are fully expanded. The caterpillars are of course small, though better known than the perfect insects, from the great shyness of the latter. These caterpillars are particularly remarkable for the muscular power they possess, which seems out of all proportion to their size. They usually feed on leaves of plants, or on flower-heads, constructing for themselves a habitation, partly composed of silk. One species in particular may be regarded as being of some interest to the gardener, which has led me to introduce the genus to the reader's notice. This is at present a scarce insect in England, but it is quite likely to become more abundant at a future time through some change in the circumstances which influence the development of insect life. It occurs in Germany in various places, and even in the cold regions of Sweden and Lapland. At Berlin, Herr Binche reported some years ago that it was very injurious in the gardens, the larva occurring in multitudes on the umbels of the Carrot. This species, *Depressaria depressella* (or if we transmute it into English, literally, the Flat-bodied Flat-body, an inelegant doubling of the expression), is seldom seen as a moth, but comes out on the wing in the autumn, hides away during the winter, and emerges in the spring to continue its species. This had a pale yellow head and thorax, and reddish-brown wings; and a grey abdomen, which is tufted. The larvæ, which more immediately concern the horticulturist, are hatched during the summer, but are not frequently noticed until about the end of July, when they are getting of some size, and the umbels show signs of their presence by the discoloration. They have an unpleasant trick, too, of partly destroying one flower-head, and then marching off to attack another. The silken tubes in which they dwell are near the surface, and out of these, when disturbed, the larvæ wriggle themselves very briskly. They are reddish-green with black heads, and when they have eaten their fill spin for themselves a closer silken covering, in which they change to pupæ. The species has been observed to frequent the flowers of the Parsnip also. It is one which is not easy to deal with, for though the larvæ may be easily shaken from the flower-heads, much of the mischief is likely to have been done ere they are detected. The moths, like many others, dislike certain strong odours; and if the exact time of their coming forth in the spring were known, the plants might be fumigated, so as to destroy them while depositing their eggs.

If a person little acquainted with entomology were asked, when taking a winter walk in an orchard, in what condition the hosts of insects were then, which he had before seen busily engaged in devouring the leaves, he would perhaps be inclined to answer, "In the egg." This, however, though true of some, is not true of all; but the small flat cocoon of the little moth called *Ornix juttea* might easily be supposed to be an egg of some insect, and it may be occasionally detected in the angle of some twig. Here the pupa remains dormant from autumn till May or June, when the small moths come out, and in their moments of repose assume the peculiar attitude characteristic in the family to which it belongs—that is to say, they elevate their heads and fold their antennæ back, press the hindmost pair of legs against the body, and extend the middle and anterior pair sideways. Give one of these a gentle touch, and it goes off with a hop, only to settle again almost directly in the same posture. The caterpillars of Ornix juttea, even if numerous, could hardly be said to be positively injurious to the Apple, but help, in conjunction with other species, to disfigure its leaves. This they do by turning down a portion of the leaf at the edge, bending it under, and binding it down with silk. The process is really a wonderful piece of ingenuity, when the small size of the species is considered. Within this abode each caterpillar feeds securely, and at last the part of the leaf thus treated turns brown; for the caterpillar does not eat through. Stainton observes that "in the under side of the Apple leaf it produces a peculiar woolly down, which is very apparent when we attempt to open a leaf inhabited by the larvæ." In appearance it is transparent and yellowish, and it occurs on the trees in July and August.

It is rather amusing to us with our modern light to read about the excessive alarm once caused by that abundant species, the Gold-tail Moth (*Liparis aurifua*); at least it seems that this was the species, though in the matter of names the older entomologists leave us in some uncertainty. Kirby states that in France, on the testimony of Mr. Curtis, who made a study of this species, it was at one time so numerous in the larva state as to cause great alarm. "The Oaks, Elms, and Whitethorn hedges looked as if some burning wind had passed over them, and dried up their leaves. The caterpillars also laid waste the fruit trees, and even devoured the fruit, so that the parliament published an edict to compel people to collect and destroy them; but this would in a great measure have been ineffectual had not some cold rains fallen, which so completely annihilated them that it was difficult to meet with a single individual." The conclusion of the story savours of the apocryphal—at least, I can testify that the caterpillar of auriflua in this country is not killed or rendered very uncomfortable by "cold" or "rain," though it provides for itself a security against the former by spinning a silken web in which to pass the winter. Perhaps, however, those are right who contend that the species in question was not the Gold-tail, but the nearly allied Brown-tail (L. chrysorrhœa), not nearly so common with us as is its relative, and occurring sometimes on the Sloe, leading to the supposition that it might transfer itself to other species in the genus Prunus. Moreover, a recent observer has stated that he detected one of these feasting on the fruit of the Bramble, and therefore it is possible a penchant for sweets or sours may exist amongst these larvæ; but it must be admitted, that though we think the Gold-tail as of little consequence amongst injurious insects, we cannot tell what its caterpillars might do if their most frequent food, the Hawthorn, were to run short. I have no doubt they would transfer themselves to other shrubs and trees, and I have found them on various fruit trees, having straggled to them from the hedges in the vicinity. Though a very common species, it does not seem to be one showing any marked fluctuations, and in numbers it is pretty uniform from year to year. According to Stainton it does not occur in Scotland.

Both the species of which I have just written are marked by a very unpleasant peculiarity while in their larval condition—the hairs of the caterpillars have the power of irritating the human skin, and producing either a rash or a swelling, attended with some pain. Not all persons, however, are thus affected, and there are those who can sport with "Gold-tail" caterpillars with impunity, while others must not approach within a foot or two of a box in which they are kept. It has been thought by some that this effect is not caused by the hairs, but is due to some secretion thrown off by the caterpillars; but as this "urtication" is especially experienced during the time that the caterpillars are moulting or forming their cocoons—that is, when there are loose hairs about them, it is more natural to connect it with these. The Rev. J. S. Wood, who complains bitterly of the annoyance they inflicted upon him, remarks, incidentally, that the caterpillar of the Gold-tail is popularly called the "Palmer-worm." I must add that I have not as yet met with a single instance in which this name was applied to the species.

During the winter and early spring months, on examination of the hedges, we may sometimes detect a brood of these caterpillars, which pass the winter in a common nest, which is constructed amongst the twigs, and composed of a tough silk, with which occasionally a few dried leaves are intermingled. Kept in confinement, however, caterpillars of auriflua show no tendency to be sociable. Each retreats to some corner of the box, and spins a separate habitation of silk—first a loose outer investiture, and then a smaller and closer cocoon within. Having done this the skin is cast, and it remains quiet until the Hawthorn buds are bursting forth into leaf. Common as is the full-grown caterpillar, it is a beautiful creature. From three rows of tubercles which run along each side there spring tufts of hairs—black, red, and white; a vermilion stripe passes down the back, while on the fifth and sixth segments are humps, and on the tenth and eleventh waxy round patches. It is rather fond of displaying itself on the bushes when the weather is bright. The moth appears in July, and flies about very languidly, being often seen in the day on trunks of trees or on palings. The females strip the down from the anal extremity of their bodies, and coat their eggs with it. These are deposited in little heaps, mostly on the leaves, and hatch out in a few weeks. Were this moth, and the Brown-tail its relative, which is similar in its economy, ever to become troublesome in gardens, the best way to deal with it would be by anticipation—that is, by seeking out the clusters of eggs, which are pretty conspicuous. The perfect insects, also, from their white colour are easily seen, and as easily caught; but when the caterpillars are abroad they could hardly be secured

in any quantity without heating or shaking the trees or shrubs —not a feasible plan with fruit trees.—J. R. S. C.

COOKING POTATOES.

Will the Editors allow me, and one who is a better judge than I am, to return our thanks to the author of an extract in the Journal about preparing Potatoes for boiling (see page 34)? I feel confident that if the advice were acted on there would be thousands who would feel under obligations. Mind, I consider that I know something of Potato-cooking. I have a prejudice for having Potatoes cooked in their jackets or skins. It pains me to see a person peeling Potatoes and ruthlessly taking away from one-eighth to one-fourth of an inch of the outsides, containing all the most valuable starchy matter. In boiling Potatoes in their skins I had for many years been in the habit, after thoroughly washing, of taking from half an inch to an inch off each end of the skin, and this contributed something towards the regular boiling without waste. But now I want to give united testimony that the plan mentioned in the "Gardener" is a far superior one.

In the case of a kidney Potato, I take as thin a slip as possible off the skin, say about half an inch wide, out of the middle of each side and round the ends. In a round Potato I take out a similar slip all round the middle of the Potato. In either case, when properly cooked, the floury matter will just be seen peeping out in this unskinned part. The rest of the skin will come off as thin as gossamer, leaving all the most nourishing part of the Potato whole and untouched. To my mind this plan, simple though it be, is the greatest advance on thorough economic Potato-cooking that I am acquainted with. Would that you could send the recipe to hundreds of cottages, where Potatoes are sadly spoiled in the cooking.—R. F.

BURNING CLAY.

The following is the method which Mr. D. Thomson pursued on a very extensive scale, when gardener at Archerfield:—

As soon as a quarter in the garden became vacant, a fire or two was started, according to the size of the quarter. When only one fire was required, it was, of course, started in the middle of the quarter. The site for the fire was first trenched to the depth of 2 feet 9 inches, turning the top spit (which had through a long course of years been improved a little by liming, the addition of ashes, road scrapings, &c.), into the bottom of the trench, taking out the two bottom spits for burning. So thoroughly clayey was the greater part of the soil moved, that the men had to dip their tools in a pail of water at every lift, to make the next spadeful slip off the metal. On this site the fire was commenced. Wood which was only fit for charring or firewood, and which is generally plentiful enough about most gentlemen's places, was used. In that locality coal was costly, and not so effective in this case as wood; the latter also affording in burning a desirable quantity of potash. The site for the fire being ready, a little stack of wood was formed 5 feet in diameter at the base, tapering cone-like to the height of 5 feet, beginning with a few dry faggots in the middle, and finishing with stronger junks of wood round the outside. All round this stack of wood a coating of the clay was laid to the depth of about a foot. It was found best to pack it on in lumps as it was turned out of the trench. When this was done the wood was set fire to at the centre, and long ere the wood was all consumed the clay caught fire and burned freely. As soon as the first layer was nearly burned through another layer was added all round, which in its turn soon burned through also. The fire was then broken down with a strong iron-handled hoe, for the double purpose of adding more wood to quicken the fire, and enlarging the basis of operations. After the fire was thus set agoing the wood was of necessity laid horizontally over the burning heap, putting the strongest pieces of wood next the burning mass, and finishing off the layer with the smallest, to prevent the clay from lying too closely to the wood and obstructing the draught necessary to combustion.

In the meantime trenches were opened at the extremities of the quarter, and the clay taken out, as already described in making the site for the fire, and forwarded to the fire, there being the solid undisturbed surface to wheel it over, and the distance lessened as the fire became larger and required more feeding.

But to return to the fire. When it was again found necessary to break it down for the purpose of extending the base, and increasing its capacity for consuming the clay, another layer of wood was added, and then a layer of clay over the surface, and all round the outside of the heap. After this, as the layer of clay was burned through, another was packed on all over and round without any wood, and so on with two or three layers, till it became necessary to enlarge the base of the fire, by drawing it down from the top, then more wood was added; and from the great power which the fire attains it is necessary to have plenty of clay and men at hand to cover over the wood quickly, or it would be consumed without doing much good; and so this process was continued till the necessary quantity was burned. I have frequently had three great fires going at a time, on to the tops of which I have wheeled layers of clay to the thickness of 3 feet and more at a time. When the fire became powerful it formed a solid pile of fire, which very soon worked its way through thick and successive layers of clay, transforming what was once an insoluble, wet, tenacious paste, into a heap of material greatly altered in its mechanical properties, and with a great capacity for the absorption of ammonia, besides being mixed with charred wood and potash.

As soon as the heap was sufficiently cool to be moved, it was wheeled back over the surface of the quarter and regularly spread, and the large lumps broken-up. On the surface of all was wheeled a garden rubbish heap, rotten leaves, road scrapings, dung, and other decayed vegetable matter that could be obtained. A trench was then opened at the end of the quarter, and the whole was turned over and mixed the same as is done with a compost heap, to the depth of the original clay, which was forked-up as well as it would allow at the bottom of each trench. This formed a staple, on which almost any crop that could be put on it in the way of vegetables grew with such a luxuriance as I have never seen equalled either before or since. I have seen Brussels Sprouts over 4 feet in height, studded with hard Sprouts more like a rope of Onions than anything else. Peas, Cauliflowers, &c., were amazingly fine crops. One quarter which I burned in 1854 had the finest crop of Carrots that could be desired, and to have attempted such a crop on it previous to its being passed through the fiery ordeal would have been in vain.

DEATH OF MR. WILLIAM OSBORN.

It is only seven weeks since your columns announced the death of Mr. Thomas Osborn, of the Fulham Nursery, and now you have to add that of his only remaining brother, Mr. William Osborn, whose death took place somewhat suddenly on the 7th inst. The extensive dealings which these brothers, as representing the firm of Osborn & Sons, Nurserymen, of Fulham, had with the many garden establishments all over the United Kingdom made them well known amongst both gentlemen and gardeners. Their visits, when on their rounds in the way of business, were looked for with pleasure by all connected with the calling to whom they were known (myself for one); for not only in the mere interest of business was their presence welcomed, but as friends ready and willing at all times to give advice and smooth difficulties, and that, too, in matters in no way connected with their interests as nurserymen; on the contrary, perhaps no one following a business calling in which there is so much competition ever did less to urge their goods upon customers. The two brothers who inherited these kind feelings from their worthy father are both no more, the elder one following the younger to the grave with an interval of less than forty days, neither of them having attained anything like the age of their respected ancestor Mr. R. Osborn, whose death was recorded some four years ago, being then upwards of eighty, and whose long connection with the firm of which he was the principal, accompanied by his benevolence of manner, obtained for him the honourable title of "Father of Gardeners"—a distinction his sons worthily maintained.—J. Robson.

TREE LIFTING.—No. 1.

My method of fruit-tree lifting, which I think may also be practised with perfect success on forest and ornamental trees and shrubs previous to removal, is as follows:—

The soil is cleared off in a circle round the tree, 5, 6, 8, or more feet in diameter, according to the height or size of the tree, down to the roots; then dig a trench at the extreme edge of the circle, three-fourths or more round, leaving only about two or three roots on one side undisturbed. The trench round is dug with a spade sufficiently deep to cut off any roots which may have gone beyond, and the soil is worked from between the roots into the trench with a fork (this should be done with care not to bruise or cripple the roots), and thrown out of the trench with a spade as it becomes full. In this way you get with comparative ease at any roots which may have gone down perpendicularly, and are able to dig sufficiently deep to get them up long enough to turn horizontally, which is of great importance, for if these roots are cut short off they are almost

certain, unless they are very large, to strike down perpendicularly again. The soil thus cleared out, and the roots all free, except those which have been left undisturbed, the tree is turned over on the side on which the roots were left, as in the accompanying figures, you then spread the soil in the bottom of the hole taking care that it is 3 or 4 inches higher in the centre of the hole. I find the tree stands much more firmly owing to this precaution.

I begin on trees very young, say the second year after planting, and I generally plant maiden or sometimes two-year-old trees. If you begin early—that is with two or three-year-old trees, you have no large perpendicular roots; and with care in pruning the roots and laying them carefully in, radiating as directly from the tree as possible so as eventually to form a circle, the trees soon have an abundance of roots, and their lifting is very little check to them except in making wood, and even this you can regulate at your pleasure.

While the tree is on its side the roots are all pruned as in the accompanying engravings. The tree represented in *fig.* 1 is about 23 feet high, the spread of roots about 9 feet, the circle—that is the hole—about 11 feet in diameter, age eighteen years. The soil is carefully worked over some 8 or 10 inches deep and spread with a fork. The depth of the hole to receive the tree must be regulated, as well as the width, by the size or height, but none of the roots, even of large trees, are above 15 or 16 inches deep, and of those which have been commenced with young (although they may now be large), not more than about 10 or 12 inches; and the trees do not require any support in any one season to prevent them from being blown over. I consider the depth of roots of great importance, both in the ripening of the wood and the quality of the fruit.

The next time the trees are lifted, the roots left on one side are cut off and the tree is turned the opposite way; thus, if the roots are left on the west side, at the next lifting they will be left on the east, and so on alternately. I find on lifting a large tree which has not been previously lifted, that some regard

Fig. 1.

should be paid to the prevailing strong winds; thus, if your prevailing strong winds are from the west, leave your roots the first time of lifting on the west side, but it does not much matter if you begin with small trees. Supposing your trees are in single rows running north and south, then your best way would be to turn them east and west, but suppose you have two, three, or more rows, and they run north and south, then you will need to turn them at some other angle so that the tops and branches may be as free as possible from coming in contact with other trees—say, north-east or south-west. The greater part of my trees which have been lifted several times, would, if taken entirely out of the ground, stand on the surface without any support, and it would take quite a strong breeze to upset them.

But suppose the inquiry is raised as to the expense and extra returns from tree lifting as applied to fruit trees, Does it pay? To those who may doubt it, I would say, Try a few at first, and I have no hesitation in stating you will think with me that the labour is amply compensated for by the superior crop of fruit, both as to quality and quantity; or perhaps I ought to speak more strongly than this, for I consider the crop pays several times the extra expense. But for my experience in lifting (for which I am indebted to Mr. Rivers, as though it differs materially from his method, yet it has been suggested by it, and but for his I should never have thought of mine) my trees, more than 2000 in number, would have been almost valueless from my having to clear off my present garden for building purposes, whereas now I may sell many of them at from 10*s.* to 40*s.* each.

I said in 1862, when I wrote a very short paper for THE JOURNAL OF HORTICULTURE, that I was indebted to Mr. Rivers, yet I found from Mr. Rivers's very excellent little book "The Miniature Fruit Garden," that he quite mistook me, as his note in the eleventh edition, page 12, will show, and I thought I was plain in what I wrote as far as it went, therefore if I have not been sufficiently plain here I shall be most happy to answer inquiries at any time.

I begin lifting early in the season and continue till the spring, as I lift many hundreds every year, but I begin with trees whose fruit is ripe earliest, generally Cherries, always choosing the mildest, but especially moderately dry weather. I find the trees suffer if lifted in very wet weather; and in filling in I never tread the soil, and rarely get a tree blown over, not more than one in eighty or ninety.

I will now give the dimensions of a few trees of my own working, which have been practised upon from their second or third year from working. They were begun upon in their infancy, if I may so express it, and their growth is not much hindered, but they yield fruit every season. On some of the trees the dimensions of which I am about to give, I have had from one to two bushels of fruit in one season. The height is taken from the surface of the soil, the spread is taken 3 or

4 feet from the surface, the age is computed from the time of working, the stocks being generally three years old at that time, and they are what are termed free stocks. I ought, perhaps, to say here that I find Quince stocks, and Paradise stocks too, lift quite as well as Crab or Pear stocks, but it is not so with Cerasus Mahaleb. I do not find this stock lift at all well in any soil; after the trees get large every bruise or scratch in the roots becomes attacked by a fungus which always produces bad health and frequently death.

Pears.	Age.	Height.	Spread.	Diam. of Stem.
	Years.	Feet.	Feet.	Inches.
Doyenné d'Eté	10	19	8	6
Broom Park	9	15	9	6
Urbaniste	9	16	7	4
Doyenné Robin	9	17	6	4
Soldat Esperen	9	18	5	4
Beurré Deil (*fig.* 2)	10	15	8	5
Doyenn' Bussoch	8	13	7	5½

Apples.	Age.	Height.	Spread.	Diam. of Stem.
	Years.	Feet.	Feet.	Inches.
Gravenstein	9	13	6	6
Golden Pearmain	8	13	6	4
Mannington's Pearmain	8	11	6	4
Irish Peach	9	12	7	4
Rymer	9	11	5	3½
Sturmer Pippin	9	12	5	4½
Waltham Abbey Seedling	9	11	7	5
Keswick Codlin	9	10	6	4

All these have been very much pruned so as to bring them into shape. I will now name a few removed in 1863 to a new garden about three miles distant, and doing well.

Apples.	Age.	Height.	Spread.	Diam. of Stem.
	Years.	Feet.	Feet.	Inches.
Shobden Court	10	17	7	5
Gravenstein	9	12	8	6

Fig. 2.

Pears.	Age.	Height.	Spread.	Diam. of Stem.
	Years.	Feet.	Feet.	Inches.
Jargonelle	10	17	10	6
Gansel's Bergamot	10	18	8	5
Urbaniste	9	14	9	4½
Thompson's	10	15	5	4
Passans de Portugal	10	16	7	4½
Louise Bonne of Jersey	10	16	6	5½

The diameter of the stem is taken 2 or 3 inches from the ground. I have given so many varieties, as some amongst them may be known to every one, as well as to show that all succeed equally well.

The other Apples removed in 1863 cannot be strictly called pyramids, they are more properly "Bush" trees. Many varieties of Apples I find rather difficult to keep leaders to, so as to form pyramids. I have not given the dimensions of either Plums or Cherries, but they are equally large.

I will lastly name a few lifted in 1863, and relifted in 1864, many of which have been removed to my new garden and are doing very well; they are some which have not been regularly lifted, and therefore require two liftings to insure their doing really well after removal. They are all standards with stems from 4 to 9 feet high.

Pears.	Age.	Height.	Spread.	Diam. of Stem.
	Years.	Feet.	Feet.	Feet.
Orange Bergamot	25	25	20	1
Catillac	15	25	15	10½ ins.
Glon Morceau (*fig.* 1)	18	23	13	10 "
Broom Park	16	19	14	9 "
Knight's Monarch	16	17	13	7 "
Eywood	16	23	13	8 "

These were not commenced with young. Many others sixteen to eighteen years old have large spreading heads.—G. Lee, F.R.H.S., *Market Gardener, Clevedon, Somerset.*

SAVING PEAS FROM SPARROWS.

There is a much greater enemy to Peas than the mouse, and that is the sparrow, with which everyone is troubled more or less, unless they be provided with Pea-protectors. It is not always convenient to have them, and in other cases there are not enough of them; for my part I never use them, but I have adopted a practice which for fourteen years has never failed

to prove successful. I have no doubt it would prove useful to many readers of your Journal.

I sow the Peas in drills as usual, and carefully watch for their appearance. As soon as I detect them I take a flat hoe or rake, and draw about half an inch to 1 inch of soil over them; and as soon as they again make their appearance I take a rake, and carefully draw the rake through the rows crossways, and expose them all at once about half an inch to 1 inch high. I prefer doing this the first thing in the morning, and as soon as they begin to get a little green I mould them up a little and stick them. I have seen sparrows come to them as soon as they have been exposed, and look very surprised, and hop between them and fly about them, but never offer to touch them. It is as they are coming through that the damage is done. The rake should be drawn through steadily, or you will break some of the Peas off.—W. F. Hunt, *Gardener, Moseley.*

WORK FOR THE WEEK.

KITCHEN GARDEN.

If not already done dress *Asparagus* beds with light decomposed manure, and fork lightly over, taking care not to injure the crowns. Many persons at this time apply salt in the proportion of about a pound to the square yard. It is, however, more advisable to postpone the salting operation until the cutting is over and the plants are in a growing state, as then they are in the best condition to receive the benefits of the application, and the crowns are greatly strengthened for the following season. The beds intended for new plantations must be frequently turned, so as to be in readiness for receiving the young roots as soon as they have grown to 2 or 3 inches. *Globe Artichokes* should now be dressed, superfluous shoots removed, and fresh plantations made if required. As this is generally a permanent crop, the ground should be well prepared by deep trenching and a plentiful application of manure. Surface-stir and give air to *Cauliflowers* under hand-lights. Tilt the glasses on the side away from the wind in cold weather, and remove them entirely during genial showers. After planting out the winter Cauliflowers there generally remain a quantity of small plants; these if pricked out in a cool, shady border, on rich soil, will make a succession, and form the connecting link between the principal winter plants and the spring-sown ones. Silver-skinned *Onions* for pickling may now be sown in the poorest soil of the garden. Work it when dry, throw it into high beds, the higher the better, and after sowing thickly tread it hard. In picking over Winter *Spinach* if standing rather thick, it is as well to remove every alternate plant entirely, as it makes stirring the soil easier, and induces a larger growth in those left standing.

FRUIT GARDEN.

See if the blossom requires protection.

FLOWER GARDEN.

We frequently find on old lawns moss predominating over grass. In such cases it is best not to mow too soon in the season, but to encourage the grass by the application of manure water, wood ashes, or any fertilising substance, previously disturbing the moss by a good scarifying with a bush harrow. Where it can be done, a few sheep penned on the lawn will effectually cure the evil. The preparation of flower-beds should not be delayed until the moment of planting. Continue to prune Roses, examine the stakes of tree Roses, and in exposed situations let these exceed the length of the stem. Roll walks, destroy weeds, and attend to artificial rockwork. In planting the roots of Ranunculuses I would advise that the surface of the beds be not higher than the surrounding soil. A margin of slate has a very neat appearance, and is cleaner and more durable than one of wood. Before planting, the beds should be forked over to the depth of 2 inches, to which extent the roots may be sunk, and when the bulbs are covered the surface should be gently beaten with the back of the spade. Keep Ranunculus seedlings, which in many instances are just emerging, secure from cutting or drying winds. Seedling Polyanthuses of last season will now be expanding fast. As these are generally flowered in the open border, some protection may be necessary. If seed is not already sown, let it be done directly, placing the pans or pots in gentle bottom heat. Give Auriculas air whenever it is possible, bearing in mind that if they are confined, the trusses of flowers which are now making their appearance will be drawn. Protection must be given, whenever there is the slightest appearance of frost, by covering with mats, &c. Carnations, &c., required to flower had better be bought immediately. They are, generally speaking, very healthy, and those which will have to bear carriage may be potted rather earlier than those which are on the spot, and which can be removed with the balls entire.

GREENHOUSE AND CONSERVATORY.

While the variable weather which usually characterises March continues, attention must be directed that uniform and moderate temperature be preserved in the conservatory. The violent showers and boisterous gales which frequently occur at this season, succeeded by intervals of mild weather and brilliant sunshine, render some management necessary. Fires should be dispensed with as much as possible, and air admitted on all favourable occasions. On still nights the house may be damped and the syringe used, and as the plants become more vigorous, atmospheric moisture may be generally increased. In the greenhouse continue to shift, train, and arrange plants. Soil containing a considerable portion of decomposed vegetable fibre is suitable to dwarf-growing plants. Many plants intended for the flower garden may be removed to frames to make room for the increasing stock propagated for the same purpose. Place the plants together after they are shifted, and keep that part of the house rather close and moist for a time until the plants begin to take root, after which they may be freely exposed. Damp the house twice or thrice on clear days by sprinkling the floor, and a syringeful of water drawn over the plants on clear mornings about twice or thrice a-week will do no harm. Be careful, however, not to wet the woolly-leaved Heaths, or you may induce mildew.

STOVE.

Look well to the tan bed in this house, and see that the bottom heat is sweet and not too hot. Although there are many plants which delight in bottom heat, such, for instance, as Ixoras, Allamandas, and Gloxinias, it should not be supposed that it cannot be applied in excess. A bottom heat of 80° is amply sufficient for any stove plant, and from 70° to 80° may be considered a very suitable range for the tank-bed thermometer to take. When worms are troublesome, in addition to placing the pots on slate at the time of plunging, it is advisable to surround them with cinder ashes, which will be found an effectual check to these intruders. Complete the shifting of all specimen plants here as quickly as possible, and keep a sharp look-out for insects. Let 60° be the minimum temperature for the future, unless the weather be very severe. Keep a brisk, growing, moist temperature during the day, and shut up early.—W. Keane.

DOINGS OF THE LAST WEEK.

KITCHEN GARDEN.

In dry intervals stirred up the ground among vegetables, and removed yellowish leaves from Cabbageworts, as they are of no use, and taint the air of the kitchen garden. We had the common and Veitch's Late Cauliflower for a long time in early winter by merely protecting them with clean litter; and these had only just ended when Snow's Broccoli came in. Veitch's seems to be a very distinct sort with close white heads, long narrowish leaves, rather upright in growth, and therefore may be planted more thickly for late use than those that have broader leaves and a more spreading habit. The London Market, or Hertfordshire Cauliflower, as grown by Mr. Beales, of Woodhall, and others, is an excellent variety. Veitch's Late, however, seems valuable for late supplies in consequence of its hardiness, as we had some of it very good when Christmas was past, and long after our ice-house had been filled. The protection we gave was one or two leaves over the heads, a sprinkling of clean litter over that, and rough stable-yard litter packed round the stems to keep the ground warm.

The *surface-stirring* referred to among those plants which the rains and lack of sunshine have kept nearly stationary, acted almost like magic upon the growth. This was, no doubt, assisted by a dusting that was given all over of equal portions of soot, lime, charred refuse, and small charcoal dust sifted from charred twigs, which, besides acting as manurial agents, helped to keep intruders off.

The time of this surface-stirring is a matter of importance. The ground must be somewhat dry before anyone is set on it, especially when it is naturally adhesive. The reason we recommend surface-stirring for growing plants, and firm potting for flowering and fruiting ones, is that free growth, as in the case of Cabbages and Cauliflowers, will much depend on the amount of air thus admitted, whilst early free-blooming and

free-fruiting depend much on firm soil, and a rather firm smooth surface.

In fine weather run a hoe or a light pointed fork between the rows of vegetables.

With regard to repotting fruit trees (page 219), the words, "The soil round the ball cannot be made firm," should be, "cannot be made too firm."

We have a good piece of Onions planted out in the autumn, and these come in well for large early bulbs, though they do not keep like those that are sown in spring. We had a piece of ground ridged and cross-ridged several times, and then dug level, but rough in order to make it dry. Here we intended to sow, but a drenching rain stopped us. We do not, however, fret at the delay, as even in the case of Onions two or three sowings, with a week or a fortnight between them, are not objectionable. One of the drawbacks of a somewhat stiff soil is, that you can neither work it nor sow it at all times, but when once the crop takes hold it gives you little more trouble. Ground for Parsnips, Carrots, Beet, &c., has been frequently turned and otherwise prepared.

Sea-kale.—We have replanted the greater part of that which we have raised to force. It will be very good for any purpose after a second summer. We have often used the finest after one summer's growth, but in general it is better to wait until the second. As we stated lately, we prefer pieces of the roots to seedlings, and they give less trouble. Our chief supply now will be from plants in the ground covered with 6 inches of sifted coal ashes, and covered on the surface with litter. On a lot more we will put pots without any covering unless frost threaten. As the season is early, this should be done before the Kale shoots much, as after it assumes the natural purple tinge it is difficult to get it to become milky white. Sea-kale pots are, on the whole, best for this purpose, but common pots, or often even a mound of ashes or peat earth, will answer equally well. If common pots upside down are used, the holes must be securely stopped. We here repeat, that to appreciate the flavour of blanched Sea-kale the heads should be stubby and rather under 6 inches in length. In cooking, a little salt and a pinch of carbonate of soda thrown in the water will greatly improve it.

We would advise that Sea-kale be used without blanching. Expanded flower-heads when not wanted for seed, instead of being taken to the rubbish-heap, may be cooked. They are good, but far inferior to short stubby shoots just showing the young flower-head or truss. These are declared on all hands to be truly delicious, and come in at a season when we have not a full supply of Cabbages and Cauliflowers. Such stubby shoots with flower-heads at their points are very frequent on plants which have been two or three years in the ground, and, as far as forcing is concerned, are better off. Had we a large garden in a cold place, and a large supply of vegetables to find at that particular time, we would have a good piece of Sea-kale, merely for using thus in its natural condition and colour. These flowering shoots should be cut whilst they are short and stubby, and before the flowering heads have expanded much, and then boiled with a pinch of carbonate of soda in the water. They turn out with a purplish colour, soft as marrow, of a rich peculiar flavour which even Broccoli does not possess. What we want our readers to see, however, is simply this—that a good piece of Sea-kale is not only useful when forced and blanched, but may be also of good service in its natural condition without any forcing or covering whatever.

FRUIT GARDEN.

We have been unable to keep orchard-house trees back as much as we wished, so have been obliged to get the tying done before it would be dangerous to do so. Placed a lot of Strawberries in the front of orchard houses, as they come on gradually, and can be moved from thence or fruited there. We have as yet only gathered Black Prince, but Keens' Seedling is coming on. We have no great liking for Black Prince, except on account of its earliness and hardiness; in fact, to have it good and pretty well flavoured, it must not have a higher temperature than 60° with fire heat, or, better still, from 55° to 60°, with an increase from sunshine. As an early Strawberry we do not see how we can discard it; as an open-air fruit, when well ripened and hard it is one of our best for preserving, since it stands boiling extremely well.

ORNAMENTAL DEPARTMENT.

There are two general modes of repotting. First, when plants are to be replaced in smaller or like-sized pots. In this case the soil is most easily removed when it is rather dry, and the roots may be soaked in water for five minutes before repotting. This is better than wetting the new soil too much at once before the roots begin to move. On the other hand, when a plant is transferred from a small pot to a larger one without reducing the ball—at least not more than picking at the sides with the fingers or a pointed stick, so that the fibres may pass through into the new soil quickly—then the following simple points should be observed: The old ball must be thoroughly soaked, long enough before to allow the extra moisture to drain off, and yet leave the ball moist throughout. Myriads of plants suffer from the neglect of this simple precaution. Then, when quick flowering is the object, the fresh soil should be packed rather firmly, so long as the fibres are not interfered with. In the case of small plants in small pots, when quick growth is the object, this treatment is not required, as the watering does almost all that is wanted in that way. Then with regard to watering. When a plant is moved from a 4-inch pot to a 5 or 6-inch one water may be given somewhat freely, provided the drainage is all right; but when, for certain purposes, a plant in a 4-inch pot is transferred to an 8-inch pot, or one still larger, much of the success will depend on the mode of watering. The soil next the pot sides should not be soaked or sodred until the roots begin to occupy it, when they will insure its sweetness and healthy condition. Hence the inexperienced will succeed best with small progressive shifts.—R. F.

TRADE CATALOGUES RECEIVED.

J. Dickson & Sons, 102, and 108, Eastgate Street, and Newton Nurseries, Chester.—*Catalogue of Farm Seeds, Implements, &c.*

J. A. Bruce & Co., Hamilton, Ontario.—*Descriptive Catalogue of Agricultural, Garden, and Flower Seeds, &c.*

F. & A. Dickson & Sons, 106, Eastgate Street, and Upton Nurseries, Chester.—*Catalogue of Farm Seeds.*

J. Coombs, The Ferns, Enfield, Middlesex.—*Catalogue of Cuttings of Geraniums, &c.*

TO CORRESPONDENTS.

*** We request that no one will write privately to any of the correspondents of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely to The Editors of the Journal of Horticulture, &c.*, 171, *Fleet Street, London, E.C.*

BOOKS (*W. M. S.*).—You can obtain Dr. Hooker's book through any bookseller. We do not know the price.

PALE BLUE PRIMULA (*E. B.*).—We cannot assign a name without seeing a specimen. It is probably either Primula acaulis lilacina, or P. erosa (Fertunei).

WILD FLOWERS (*J. H. F.*).—We can only reply that we must continue until all the flowering species are portrait-ed, or the work would be imperfect.

HOTEIA JAPONICA (*A. S.*).—Although you term yourself "an old fogey" you are quite in the sunshine when you identify it as the Spiræa japonica of the gardeners. Some botanists call it S. barbata.

PELARGONIUM LEAVES SPOTTED (*J. L.*).—The leaves were spotted in consequence of the condensation of water on them, or of watering or syringing overhead, and the sun striking on them while wet. The only remedy is to keep the atmosphere drier, not to let water remain on the foliage, and to give a little air at night and early in the day. The weather of late has been very unfavourable to this class of plants, but if you had afforded a gentle heat so as to have given air more freely the leaves would probably have escaped spotting.

SHRUBS, FERNS, AND ALPINES ON ROCKWORK (*J. T.*).—Abies Clanbrasiliana, Berberis Aquifolium, B. empetrifolia, Cornus canadensis, Cotoneaster microphylla, Cupressus Lawsoniana, Daphne Cneorum, Genista prostrata, G. triquetra, Helianthemum coccineum, H. rubrum flore-pleno, Hypericum calycinum, Juniperus communis, J. Sabina, J. prostrata, J. tamariscifolia, Lithospermum fruticosum, Pernettya procumbens, P. mucronata, Potentilla floribunda, Vinca elegantissima, Vinca minor variegata, and azurea flore-pleno; Erica carnea, ciliaris, cinerea, hibernica, Tetralix, vagans, scoparia, and vulgaris in varieties. The Araucarias that have lost the leaves of the side branches we should not cut back further than to the first fork or shoot below the dead part. If you cut to the main stem it is probable no branches will be again produced, and the trees will be bare at the bottom. Leave them as they are, cutting away the dead parts only.

BRIARS FOR ROSE STOCKS (*P. T. B.*).—It is now late to take up the Briars, but we should nevertheless do so, cutting them off about 5 feet in length, and taking them up with a good quantity of roots. Preserve about 6 inches of the root-stem, cutting that over with a saw, and paring the cut surface smooth with a sharp knife. It is immaterial if the root-stem is crooked, but not more than 4 inches of that need be left. Cut the stems over at 4 feet, or at the height you wish, and cut in all the side shoots close to the stem. Plant a foot apart in rows 3 feet from each other. The ground should be deeply dug and enriched with manure. Reduce the shoots to two on each stock, selecting of course the strongest. November and December are the best months to plant the stocks. Strong loam or a clay soil will be the best.

TUBEROSE CULTURE (*Willesden*).—They succeed in a compost of two parts light fibrous loam, one part leaf soil, and one part old cow dung, intermixed with one-sixth of sharp sand. 7-inch pots are sufficiently large, drain them moderately, and pot so that the roots will be covered to the neck. The offsets should be removed. It is well to place a little silver sand beneath and round

the bulb. The top or crown need not be higher than level with the rim of the pot. The pots should be placed in a bottom heat of 65° to 70°, and a top heat of 50° to 55°, and when the plants are growing freely afford a temperature of 60° to 65° at night in dull weather, and 70° to 75° or 80° by day with plenty of air. After the middle of June they do very well in a light position in a greenhouse. Syringe freely, as the foliage is very liable to the attacks of red spider. From the present time to April is a good time to pot.

RIDDLE (*E.*).—We think we can answer "Why Potatoes are a useful vegetable ?"—Because they have their eyes about them. Let us add this toast for a gardeners' dinner—"The game of life—shuffle the cards as you will, spades always win."

COCOA-NUT FIBRE REFUSE (*H. A. L.*).—Apply to Messrs. Barsham, Kingston-on-Thames.

SURDING LIGHT (*A. W. B.*).—Paint the glass *inside* your greenhouse with whiting and water, adding a little Prussian blue.

CONCRETING VINE BORDER (*Nemo*).—As your "garden soil is light, sandy, and dry," we would not concrete. Ground lime (blue lias) is what is used. We find two sacks to a yard of rough gravel sufficient; if a little more lime were added the concrete would be better.

PLANTING FLOWER BEDS (*W., Summer Hill*).—Under your circumstances we would merely alter the planting a little. Centre bed: to keep the Viola cornuta all right you should divide and plant in spring, and then remove the seed-pods. Then the other two beds we would cross, having two of Calceolaria Aurea floribunda, edged with Lobelia, and two of Mrs. Pollock edged with Flower of Spring.

PRIMULAS THE SECOND YEAR (*A. A. M.; Ewe*).—To have good plants sow every year, but the old plants will flower again next autumn. As the plants have not flowered we think they will do so this spring. We should keep them in a light airy position in a greenhouse, water them freely, and give weak liquid manure once a-week. After flowering place them in a cold frame, keep them rather dry, after May place them out of doors on ashes in a slightly shaded position, and remove all the old leaves and flower-stalks. In July top-dress, and place the plants in a cold frame, but only to protect them from heavy rains, which are very injurious to the flowers. The plants will flower well from August to November, and may afterwards be thrown away, in order that young plants may take their place. For flowering from November to April, sow at the beginning of April. We have plants now in excellent condition that have been in flower since November, and have cut from them some hundreds of trusses of flowers.

PRUNING LAURELS, HOLLIES, AND YEWS (*E. G. R.*).—We consider the beginning of April the best time to cut-in evergreens, and quite early enough in all but very forward seasons, and we should advise your deferring pruning until then, especially as regards the Hollies. Pruning will do no harm even if deferred until the shrubs have begun to swell their buds, and made some growth, for the roots will send up sap more freely for the development of the dormant buds which you seek by cutting-back to call into activity. Besides, if the weather be cold, as it very often is in April and even May, the shrubs are deprived of the shelter those outer parts afford, and the parts that are sheltered by them are consequently tender. We therefore do not advise pruning shrubs too early. The beginning of April for Laurel and Yew, up to May for Hollies.

PLANTS FOR BORDERS BY WALK (*A Subscriber*).—You seem to wish to have partly annuals and partly bedding plants, but we should not advise this, as annuals cannot compete with bedding plants. For our own part we should have Lobelia speciosa next the walk, then Geranium as you propose, and Calceolaria in the next line, with a line of Perilla at the back, but your border will only admit of three rows. Another way is Variegated Alyssum or Cerastium in front; the second line some dwarf-growing golden-leaved Geranium, with the flowers not removed; or Golden Feather Pyrethrum would do if the flowers were removed, and Imperial Dwarf Ageratum in the back row. If you wish for annuals have Lobelia speciosa, which you may raise from seed sown now in a hotbed; Saponaria calabrica for the second line, and Nasturtium Tom Thumb Spotted for the back. Another way is Saponaria calabrica in front, second row Tom Thumb Scarlet Nasturtium, and the back row Dell's Crimson Beet, which is both ornamental and useful.

VEGETABLE MARROWS IN FRAME—VARIOUS (*E. J.*).—We do not advocate growing these in frames, except until they become established, then remove the frames, a warm situation being chosen. Besides, we consider frames can be much more profitably employed than for subjects that do better outside. Tomatoes may be grown in the frame; the Orangefield Dwarf is good. Cuttings of fresine Lindeni inserted now, placed in a hotbed, and grown in heat until May, will make good plants to turn out then. We have no doubt of the utility of cuttings put in up to the early part of April, and grown on up to the middle of May being found most useful as planting-out time. For store plants August is the best time for inserting cuttings to be well-established before winter.

ROSE CUTTINGS (*Ignorans*).—We should take up the cuttings carefully, pot singly in 3½ or 4-inch pots, and place them in a cold frame, keeping them rather close, moist, and shaded from bright sun until they are growing freely, and then admit plenty of air. It is advisable to set the pots on coal ashes. Water as required, and by the end of May the cuttings will have rooted sufficiently for planting out in rich light soil. Be careful not to break the roots, which are very tender. Water copiously, and we have no doubt you will have some flowers late in summer. Roses on their own roots require a light rich loam well drained, otherwise they do not succeed. We presume yours are the Dwarf Scabious, or it may be the Sweet Scabious. It is, however, immaterial, as the perennial kinds will flower the first year if the seeds are sown early and the seedlings forwarded in heat, planting out in May as you propose. We think they will flower.

CHRYSANTHEMUMS (*Idem*).—*Large-flowered* :—Beauty of Stoke, yellow and amber; Meyerbeer, rosy purple; Miss Hope, lilac; Undine, cream, tipped lilac; Princess Louise, rosy lilac; Virginale, white, late-flowering; Beethoven, bronzed red; Golden John Salter, golden yellow; Pink Perfection, pink with a deeper shade; Rival Little Harry, dark yellow; Stellare, amber; White Eve, pure white. *Pompons* :—Fairest of the Fair, lilac blush, silvery tips; Little Gem, peach blush; White Trevenna, white; Prince Victor, dark rose maroon; Mary Lind, sulphur blush; Madge Wildfire, vivid red, golden tips; James Forsyth, orange crimson; and Miss Towers, white, tipped with pink.

GUERNSEY LILY NOT FLOWERING (*R. D. G.*).—The most likely cause of the plant not flowering, is the leaf growth being too small, and in most cases the bulbs are planted in too light soil. It should be a strong yellow loam, and the plants should be set on pans filled with sand kept wet in summer. When growing the plants should be well watered, especially during dry weather in spring and early in summer, and continue watering until the leaves begin to turn yellow, then discontinue it. The plants should have a place on a shelf in a cool airy greenhouse, setting the pots in pans filled with sand kept wet even when the plants are at rest. They need only be potted every second or third year, and always firmly. Keep them under rather than overpotted.

SOIL IN GREENHOUSE FOR TACSONIA AND PASSIFLORA (*M. W.*).—They both succeed in a compost of two parts light fibrous loam, one part leaf soil, one part sandy peat, and half a part of old hotbed manure, the whole well mixed and chopped up, but not very finely, adding one part of sharp sand, draining the border well, and placing the soil about 2 feet deep, and 6 inches above the intended level.

PLANTING CANNAS (*Idem*).—We should grow the plants in a greenhouse, place them in a cold frame in May, and plant out at the end of the same month, choosing a sheltered situation, for they have a miserable appearance when exposed to winds, though just as much the contrary when placed in good, rich, light soil in a sheltered warm position. Afford plenty of water in dry weather.

APHIS ON STRAWBERRIES IN VINERY (*A Young Journeyman*).—You may safely fumigate a vinery with tobacco when the Vines are in leaf. It will not injure the Vines if the tobacco paper be good, and the house not filled with smoke to an excessive degree. Fill it so that you cannot see a plant from the outside, and let the foliage of the Vines and plants be dry.

BACK NUMBERS (*E. R. A.*).—You can have Nos. 464, 471, and 473.

PALMS AND OTHER PLANTS IN POTS (*Cambria*).—The following plants will answer for the windows of your unheated hall, but in very severe winter weather it would be advisable to have thick blinds or shutters to the windows: *Palms*—Chamærops Fortunei, C. excelsa, C. humilis, C. arborescens; Corypha australis, and Seaforthia elegans. *Other Plants*—Dicksonia antarctica, Araucaria excelsa, Dracæna indivisa, D. lineata; Dasyliriou acrotrichum, Yucca aloifolia variegata.

ROSE, GABRIELLE.—"*C. D.*" inquires where plants of Gabrielle, a Hybrid Perpetual China, can be had? Will some of our readers answer the query?

TEA ROSES TO BLOOM LATE (*A Subscriber*).—It is very difficult to give a definite answer to your query, as so much depends on the soil, aspect, and weather. The third week in July is late for Tea Roses, and as you wish them to be in bloom that week you had better pinch back as late as the second week in April; but, as we have said, unless we have further particulars we cannot give a definite answer.

ROSE IN A CONSERVATORY (*Tyro*).—Your house will be a rosery under glass. Having no fire heat, you will need to provide for the winter protection of the roots of the Roses you grow in pots. You will either need to plunge the pots to the rim in ashes, or, what is neater, in cocoa-nut fibre refuse, or to wrap the pots with bay or straw bands, though they may be placed together with some hay between and over them. The Roses intended for the roof, you must plant out. You should not cover the roof too thickly with the Roses, or the plants beneath will not thrive. Keep them dry from November to February, and whenever the external atmosphere is above 40° give air; when below that temperature keep the house with a very moderate amount of air. After the middle of February encourage growth by the free use of the syringe, increasing the moisture so as to correspond with the increase of heat. Close early in the day during spring, storing-up a good amount of sun heat, but in the early part of the day you can hardly give too much air if the atmosphere is not frosty. The syringing early in spring should be confined to the morning, later in the season syringe twice a-day, but discontinue syringing when the flower-buds are about half expanded. When in flower, shade from bright sun, and at that time only. Tiffany is a good shading material, but it should be fixed so as to be drawn up or let down at will, and be kept on only when the weather is bright. You will require rollers and sashcord. You might, instead, brush the lights over outside with a size of whiting and milk. That would answer your purpose.

EVERGREENS FOR A ROCKERY (*M. I. K.*).—The following used to form the undergrowth beneath a rockery, but the dirt which fell from above caused the shrubs to look anything but evergreen. Evergreen Privet, Rhododendron ponticum, common Yew, common and variegated Holly, common and Portugal Laurel, Box, Butchers' Broom, and Alexandrian Laurel, Spurge Laurel, Ivies, Periwinkles, and, best of all, Aucuba.

GROWING ZONAL PELARGONIUMS FOR EXHIBITION (*A. R.*).—The plants should be two or three years old, and grown in 8-inch pots, but they will not do to compete with those grown in larger pots than these. They should be pruned now, and kept dry until they are beginning to break, when they should be carefully repotted. The pots must be moderately drained, and filled with a compost of two parts light loam, half a part of leaf mould and old manure, one-sixth part of charcoal, and the same of silver sand. Keep them moist and in a moist atmosphere, with a temperature of from 50° to 55°, increasing to 10° or 15° with sun heat. In May repot them into 8-inch pots, and in the bottom of each of these put an oyster-shell instead of crocks; lay on the top of this some boiled bones and the charcoal which remains after sifting in a half-inch sieve. The smaller charcoal may be mixed with the compost before mentioned, the pots filled with that mixture, and the plants placed in it. Water them moderately at first, but plentifully after a few days, and when the roots are well developed give weak liquid manure twice a-week. Tie down the shoots so as to cover the rim of the pot; stop them in the middle of May, and in June remove the plants to a cold pit if possible; but if not, keep them as cool and airy as possible. The trusses may be removed to within six weeks of the show, but the shoots must not be stopped within eight weeks. Plants 2 feet 6 inches across, and correspondingly well furnished, would stand a chance. From a dozen you should be able to select half. Zonals should be shown, but you may grow some Nosegays.

VIOLET CULTURE (*S. P. S. X.*).—Your soil is too heavy. Could you not lighten it by giving a dressing of leaf soil and sand? Plant rooted runners early in May in well-dug ground enriched with leaf soil and old manure, 1 foot apart every way. Dust with soot every ten days, so as to keep red spider under; keep down the runners, and stir the ground about the plants frequently. In September place in frames those wanted for early flowering, keep them warm and dry, and admit air. Those left out-doors should have the ground stirred, and a top-dressing of leaf soil before severe weather sets in. A border with an east, north-east, or north-west aspect is most suitable—in fact, we grow ours on a north border. The leaves you sent us have the appearance of those usual to plants growing in a wet cold soil. Drain the ground better, and give a lighter soil and abundance of air.

SOIL FOR ROSES (*D. H.*).—"Strong loamy sand" ought to grow Roses well, if you mean that it is a strong loam yet not clayey. Gypsum to such a soil

would render it less fit for Roses. We should manure it with leaf mould and thoroughly decayed stable manure; but we should rely most on watering with weak liquid manure as soon as the blossom-buds were perceptible, with regular watering and mulching the surface throughout the summer. Aucuba seed produces both male and female plants, and if grown together the seed is fecundated naturally.

PRIMULA, CINERARIA, AND CALCEOLARIA CULTURE (*A. B.*).—Start the seeds of the first two mentioned in a gentle heat some time during May, and then remove them to a house which has a night temperature of 55°. When the plants show their rough leaves put them off singly, return them to the house, and as soon as they have recovered place them on coal or ashes in a cool frame. At the end of July or early in August shift the Primulas into 5-inch pots, change them to 7-inch ones by September, place them in a house with a temperature of 45° at night, and remove all the flowers up to November. In February or March, when they flower, select the best formed and most luxuriantly flowering ones, and throw the others away. Keep the selected plants in a light airy position under cover and in a heat of 50° until the seed ripens. Shift the Cinerarias into larger pots during August, and in October place them in a pit where frost cannot reach them. In February again change them into 8 or 9-inch pots, and then treat them as recommended for Primulas at the same time. The seed should only be saved from the plants with the best shaped and brightest coloured flowers, and all others ought to be removed from the house. The Calceolaria seed should be sown the first week in July, and the pans set in a shady place out of doors, covered with a hand-glass, and the soil kept regularly moist. When the plants can be handled, prick them off about an inch apart in pans, and place them in cold frames. Keep them moist and shaded from bright sun. When they touch each other pot them off singly in 3-inch pots, which should be placed on ashes in a cold frame. Keep the plants close and moist until established, and protect them from frost. Remove them to a house or pit with a night temperature of 40° to 45°, and keep them near the glass as well as cool and moist. Shift them into larger pots in December, or earlier if the pots are full of roots. Pots 5 inches in diameter are suitable. In February or early in March they may have 8 or 9-inch pots, they should have plenty of room. It is a good practice to take out the centres of the shoots when these have four joints, in order to cause the production of side shoots. Remove the plants to a light airy house in April, place them near the glass, and as the flower-stalks advance support them with stakes. They will flower in May, and you will need to select the best formed, and the best coloured and spotted flowers, throwing away the plants that have imperfect flowers. After flowering place them in a house with a temperature of 55°, and keep the atmosphere dry, but supply water as required. It is unnecessary to artificially fertilise the flower. A compost of two parts light fibrous loam, one part leaf soil, half a part of old hotbed manure, and one part of silver sand, charcoal, and cocoanut refuse in equal proportions will grow the whole well, adding half a part of sandy peat for the Primulas.

INSECTS (*F. M.*).—The small caterpillars on your Currant shoots are the newly-hatched young of the Magpie Moth, Abraxas glossulariata, described and figured in the "Cottage Gardeners' Dictionary," page I.—I. O. W.

NAME OF FRUIT (*D. F. J. K.*).—Your Apple is Reinette Van Mons.

NAMES OF PLANTS (*G. B., Harlow*).—They are not numbered, and being only leaves we cannot name them. We do not know why Calla leaves are spotted, as we are not told where they are grown or what kind of spots there are. (*C. W.*).—Adiantum trapeziforme. (*A Constant Subscriber*).—Aspidium capense. (*W., Hannaford*).—Euonymus japonicus (true) in fruit. We never saw it fruiting before; your living at Teignmouth accounts for it. A drawing of it in flower is in "Bot. Reg." xxx., pl. 6. (*Dorset*).—Miconia peruviana. (*East Sussex*).—Dicksonia (or Cibotium) Barometz. (*Ignoramus*).—Omphalodes verna. (*A. W., Coldstream*).—Kalmia latifolia, and Rhododendron ferrugineum. (*Tottenham*).—The common Butterbur, Petasites vulgaris.

POULTRY, BEE, AND PIGEON CHRONICLE.

UNITE TO COMBAT EVIL.

I AM rejoiced to find so many others besides myself coming to the conclusion that "something must be done." I do not want to use exaggerated language. When some honest folks say that "unless these things can be put a stop to," shows must come to an end; I don't believe it. Honourable men will always be in the majority, and both the fancy and the shows which grow out of it have taken too deep a root for a few swindlers to destroy them, let them do their very worst. Still, enough has been revealed of late to awaken in many minds some very serious reflections.

What is the poultry fancy to come to?

There has been enough to cause very much misgiving upon this point. To commence only as far back as the New Year—and it may be no harm thus to recapitulate. We had at the commencement a flagrant case of plucked hocks; then at Whitehaven we had a case of clipped feathers, a case of dyed feathers, and a bad case—an atrociously bad case—of a pin stuck through the victim's comb. Just now I hear of trimming in another form—a most wicked case, in which a pair of Jacobin Pigeons, which had fairly won an honourable position, were grossly trimmed in order to fasten the vile imputation upon their exhibitor. That they were trimmed since the judging the judges will swear to. Then we have had birds stolen from shows; we have had birds deliberately poisoned; and we have had birds on their return, by some faint scruple of conscience not destroyed, but irrecoverably spoilt for the season by disappointed competitors; and this black catalogue is only the experience of young 1872.

Some time back, rightly or wrongly, I formed an opinion that the attention of the judges needed to be very emphatically called to this matter; but I feel bound to say that this is not the want which in my judgment exists now. From private letters, I know this subject to be at present an anxious burden upon their minds; and it will be scarcely a breach of confidence if I say that one of our very best judges has expressed to me his strong feeling, that upon the judges is now thrown the whole brunt of this conflict with rascaldom, and that they are not "backed up" in it by the fancy as they ought to be; and I think he is right. I know, myself, cases in which committees have either been so cowardly, or so lenient to local exhibitors, that they have refused even to affix to the pens notices of disqualification awarded by the judges. Some will not even take the milder measure of publishing them in the catalogues. At all events we have the declaration, "evidently inspired" as they say in the newspapers, that these gentlemen consider some "more stringent measures" are absolutely needed.

But the question is, What can be done? It is easy for the editors, or anybody, to propose a stringent clause for committees; the problem is, how to get such a clause or any other measures adopted. What is everybody's business becomes nobody's. I believe the vast majority of poultry exhibitors earnestly desire that something should be done. We have seen that the judges desire it. We all see that the case needs it, but how is it to be done, and who is to do it?

I venture to suggest, very seriously, that the very first step in this direction must be some organisation or combination of the poultry fancy; that for this, as for some other urgent reasons which alone would be sufficient, such organisation has now become a necessity. Such a body could act; it could speak; its very suggestions alone would or ought to be received with a respect which those of any mere individual could never command. In fine, I believe the time is come when it is wanted; and not only so, but when the want is keenly felt in many different directions and for many different reasons. This being my belief, I shall make no apology for asking if such an organisation cannot be formed?

I may be asked, What is this but a revival of the old Poultry Club? and may be pointed to this body's rather ignominious failure. Well, the last does not trouble me, for I think I can see adequate reasons for it. It started by assuming too much; that always sets people's backs up. It rushed into a "Standard of Excellence" at once, and took a position of domination over the judges, which to say the least was not wise. Very personal antipathies and objects were openly avowed and gloried in. I would have a Poultry Club if possible, but I would have it without these mistakes. I know there are pitfalls on every hand. I know people are apt to feel and to get very "lively" on certain matters. Nevertheless, there is abundance both of good sense and good feeling amongst fanciers, and with the help of these I do think something might be done, which would really help and benefit us all.

What is intended, and what is not intended, should, however, be clearly understood. I do *not* expect such a body would correct every abuse, or abolish any, all at once. I would not wish it to lay down the law for everyone else, or to go quarrelling with certain judges or with certain shows. I would not expect that its members should get a distinct *quid pro quo* for their subscriptions. The idea should rather be that of a number of real amateurs, who love their pursuit, joining together to promote the best interests of their fancy. I would take it for granted that the judges had the same object at heart no less truly, and I would endeavour to consult and help them in every way possible, so as to secure their hearty co-operation. I should hope for their presence at the important meetings as honoured members or as welcome guests. I would not be disappointed if for some time little appreciable results were seen, seeing that the mere association of the honourable together is itself a benefit. The main idea would be, in charity and moderation, to seek the right.

Surely as much as this is practicable, and assuming only so much as this, I believe fully that "to the upright there ariseth light in the darkness." We should begin to see our way, and as opportunity opened we could begin to act. Any member convicted of fraud could be expelled. Anyone, not a member, could in a venial case be warned, and if his offence were repeated could have his name sent by circular to committees, with a warning against him. Various shows could be invited to associate themselves with the club, and secure its support by honourable rules. Cases of cheating could be blazoned in the regular reports, and in many ways, by steady degrees, and not attempting to do too much at first—that is the great thing to avoid—a quiet and powerful influence could, I believe, be brought to bear which would at least lessen many existing evils.

The annual meeting of such a body ought to be a truly pleasant gathering, and, if possible, not only contemporary with, but really associated with one of the great shows. To it all the members should look forward; if with a good dinner thrown in, so much the better. All mere personal matters should be rigorously put down; but the judges might at such a gathering be courteously asked concerning any general question or apparent change in the standard of judging, and all would be benefited at once, instead of having to learn the "new rule" by the losses of a whole year. Such changes constantly occur, for breeds improve, and fashions change also. Let them in this way be fairly

announced and formally noted. This alone would be a great benefit.

Surely such a scheme is not utopian. I have felt its need for long, and have thought this a favourable opportunity for seeing what is thought of it. Actively I could do little for it; but there are people who could take it up and carry it to completion, if only there are enough fanciers who share these convictions, and who are willing to unite together, and to act together, in seeking to raise the tone of that great body to which they belong. —L. Wright.

TRIMMING BIRDS FOR EXHIBITION.

"Cheltenham" appears to acquiesce in all you say, as every honest exhibitor must do, providing the clause would stop the nefarious practice of trimming. But much as I detest trimming, I should not like to enter my birds where such a clause was in force, unless I knew that my birds would not be tampered with on the route, or when they arrived at the show field, which, as is well known, has been done by some unprincipled persons. There have been such injuries as plucking or breaking the tails. It is not very long since I heard a well-known exhibitor say that one of his Game cocks came back from a show with his tail cut clean off. So, as long as we have such persons to contend with, I think it would not be safe to exhibit under such a clause, because men who will commit dastardly acts like the above would be the very persons to look out for an opportunity to trim some valuable birds in a rough and ready way, and when the birds were put up by auction buy them at a low figure, and thus cheat the honest exhibitor out of his birds, when perhaps no reasonable amount of money would have bought them of the owner. So I ask, Where would the owner get redress when the judges could prove on oath that the birds were trimmed, and the public would naturally believe them? Therefore I think the remedy worse than the evil.

I would suggest that committees appoint a competent person to take a casual glance at all the pens before the judges make their awards, and tick off all the numbers of those pens he thinks are trimmed, and give the numbers so ticked-off to the judges. These, when they came to the pens which are supposed to be trimmed, would examine them very minutely, and, if they found any birds that had been trimmed, would disqualify them, and any other kind of stock the owner might take prizes with at the show. Let the names be published in your Journal for twelve months, so that secretaries might see the defaulters' names and refuse their entrance fees until the expiration of the above time.—T. Barker, *Illingworth, near Halifax.*

MANAGEMENT OF FOWLS AT SHOWS.

I was in hopes that "Winner of Four Cups" would have replied to "Amateur's" article in your impression of February 15th, but as he has not done so I offer a few remarks. I would have liked very much if "Amateur" had given his name, for then people could judge for themselves whether his sawdust experience were worthy of a place in the minds of those who have none but valuable stock to experiment upon.

For my own part I would be most unwilling to try such an unnatural experiment upon my birds. I would assist Nature, not oppose it. It is extremely natural for fowls to pick up sand, stones, lime, and such like, but until now I never heard of their attempting the sawdust, and I still think their doing so arises more from necessity than choice; if they were set at liberty they would choose something more natural. I would like very much if some of the great breeders would state their opinions on this very important subject. I am far from thinking with "Amateur" that the birds fit for exhibition are in an unnatural state, but the very opposite—namely, in a high state of nature, and I have no difficulty in keeping them in that high state of nature; but if birds that have been treated well all their lives be taken and cooped-up for eight or ten days, and denied all access to their very natural bill of fare—small stones, lime, sand, &c., (deny a bird these, and pray with what do you expect it to digest its food?)—I do not wonder at indigestion setting in, which is disease enough, and which I believe my cup cockerel had, and nothing else.

What is to prevent committees having the pens well cleaned out once a-day, and the floor of each sprinkled with road grit, &c.? It is quite as easily obtained, and much more natural than sawdust. "Amateur" asks what my exhibition birds were fed upon before sending them to exhibitions. Well, mine were fed upon a mixture of oatmeal, Indian meal, and sharps, equal parts of each, in the morning, and barley at night. Everything that is natural for birds to eat should be given them when at shows to make up for the want of liberty, fresh air, and other natural conditions.—James Clark.

The Illustrated Book of Poultry by L. Wright.—Mr. Wright requests us to state that this book will only consist of twenty-five parts in numbers, not fifty as supposed by "Wiltshire Rector" in his kindly notice. He makes the request on account of several persons having expressed their regret that they could not afford the expense which fifty shilling parts would involve.

GAME BIRDS AND BANTAM SHOW.

I should like to call attention to a new show that I have suggested to the Crystal Palace Company—that of Game birds and Bantams. I have long felt that a show of this description would be very interesting. The Bantam fanciers will now have an excellent opportunity of exhibiting the beauties of these charming and much admired little birds, there being no less than eleven classes, with three prizes to each class. I have been led to make this large number of classes with hope of seeing again cultivated some of the old kinds which are seldom now exhibited, such as the Nankeen, the Booted Browns, Cuckoos and others. Let the Bantam fanciers send their birds, and I will do my best to render the attempt a success. I hope also those who have Game birds will assist by sending some specimens, as there are eight classes for Pheasants, five for Grouse, and five for Partridges and Quails. Amongst others I trust I shall see a specimen of that grand bird the Capucaille, also the Black cock, Red Grouse, and Ptarmigan, and some of the numerous varieties of the Pheasant and Quail. I believe the schedule of prizes is now ready, and may be had on application as per advertisement in this Journal.

I may add that this show is not intended in any way to interfere with the large annual London show, but is suggested by me for the purpose only that the public may have the pleasure of seeing live Game birds and also all the many varieties of Bantams, for which there are seldom, if ever, separate classes at most of our poultry shows.—Harrison Weir.

FAKENHAM POULTRY SHOW.

This was held on the 27th and 28th of February, at the Corn Hall, Fakenham, and was a great success. The entries numbered 450, a marked contrast in quality to the Exhibition of September last. The arrangements of the Show were well carried out. Of *Dorkings* there were sixteen entries, the cup (the only one remaining in the county) was awarded to a good pen of Dark Greys; Lady Gwydyr carried off the cup for the Cochin and Brahma classes. The show of *Game* was very fine and the competition severe. The cup-winners of Brown Reds were claimed by Mr. S. Matthews, of Stowmarket. The second prize was also awarded to Brown Red. A very good pen of Duckwings took the first prize in the "Any other Variety" Game class. *Hamburghs* were well represented; the Spangled and Pencilled were shown in two classes, Silvers in both cases carrying off the first honours. *Spanish* were fair. The *Minorca* class as a speculation was a failure, only three pens being exhibited. The first-prize winners were good birds, but sadly out of condition. A pen of White took second honours. Mr. W. K. Patrick, of Lynn, had it all his own way in the *Poland* class. There was a good show of *French* fowls, nine pens out of the sixteen entries obtaining notice. As usual *Bantams* were in strong force. The cup went to Brown Reds. The Rev. F. Cooper's as usual took the first prize in the class for any variety of Game. In the Any variety class there were but six entries, a fine pen of Black Hamburghs winning. There was a special class for live fowls suitable for table purposes, very poorly filled. The Selling classes were fairly filled, and a great many pens changed owners. *Turkeys* and *Geese* were well shown; in the latter the first prize was awarded to a pen of White, Chinese second. Aylesbury and Rouen *Ducks* were classed together, Aylesbury winning both first and second prizes. East Indian were first, and Muscovy second in the Any other variety class.

Rabbits were above the average.

There was a good display of *Pigeons;* the cup-winners were Barbs.

The *Canaries* and other *Song Birds* were first-rate, and attracted much notice. We published a list of the awards last week.

Dover and Cinque Ports Show.—We recommend the following rule to other Committees, although it does not go so far as we recommend. 16.—The Treasurer of the Club will withhold payment or delivery of any prize awarded to an Exhibitor on receiving from the Secretary a certificate in writing under his hand and countersigned by a majority of the Committee, that it has been discovered subsequently to the award of the Judge that a regulation of the Club has been broken with respect to any birds, and such certificate shall be final and conclusive on all persons, and no Exhibitor shall have any right to appeal therefrom.

Spalding Show.—I have to acknowledge the receipt of the undermentioned subscriptions towards a five-guinea cup or piece of plate for the best young Carrier of any colour, bred in

1872, and the same for the best young Barb; to be awarded at the Spalding Show in July next. The Committee have decided the birds shall be shown singly, and there will be three classes for young Carriers, with a first prize of £1, and second of 10*s.*, in each—viz., Black and Dun, and Blue or Silver, and two classes for young Barbs, with prizes of the same amount for the best Black, and any other colour. M. Hedley, £2; Capt. Heaton, £1; J. C. Ord, £1; J. Frith, £1; G. C. Holt, £1; E. Horner, £1; J. H. Ivimy, 10*s.* 6*d.*; G. W. Thomas, 10*s.* 6*d.*; Anonymous, 10*s.*; J. Gill, 10*s.*; E. Walker, 10*s.*; W. B. Tegetmeier, 5*s.*; and myself, 14*s.*—£10 10*s.*—Wm. Massey, *Spalding.*

NORTHAMPTON POULTRY, PIGEON, AND CAT SHOW.

This Show was held on the 6th inst. and following day in the Corn Exchange, a building admirably adapted for the purpose. This, the third annual meeting of the Society, was a success, which quite exceeded the anticipations of the Committee. As a proof of their having secured public confidence we may state that on each occasion the number of entries has been double that of the preceding years, and if this rapid growth goes on it will be a question where the Show of 1873 is to find accommodation. This year there was an entry of more than eight hundred pens, and it is rare to find any public show that was so generally good as that just held at Northampton. The results are strong proofs of good management, and we are glad to find the Committee so well supported by amateurs of the highest standing. Some of our readers may feel an interest in knowing that a Cat show took place at the same time and under the same management. A somewhat novel feature in the poultry department was classes being appointed for single hens as well as single cocks, and the result was a very large competition of first-class birds.

The Grey *Dorkings* were good, more especially the hens; in the cock class, an otherwise exceedingly large and good bird was the most "squirrel-tailed" we ever remember to have seen exhibited. All the classes for *Cochins* were excellent, the Buffs being the largest entry, and these proved as good as they were numerous. By the prize schedule, a silver cup was offered for the best cock of any breed in the Show, and the hens were similarly treated. Both of these cups for single birds were taken by Buff Cochins, the one by a fine, clear-coloured, rich Buff cock, the property of Mr. Taylor; the silver cup for the best hen of any kind was awarded to a fine heavily feathered hen of Mr. H. Tomlinson's, adding repute to his well-known yard of this variety. The Partridge-coloured, also the White Cochins, were such as to do ample credit to Captain Coleridge, and Messrs. Sichel and Woodgate. Mr. Ansdell was again successful with Dark *Brahmas*, but both his hens and the old cock are overshown, and under such long-continued trials the success of the coming breeding season will probably be greatly compromised, for the constitution of these first-class specimens is fast breaking up, in fact it is a pity (for they deserve it) not to rest the fowls after so much excitement and prize-winning. *Spanish* were good, and mostly in very fresh and hearty show condition.

It is long since we have seen a better competition in Aylesbury *Ducks*, and it must have been an unenviable task for the Judge to decide upon their positions on the prize list. The Rouens which competed in the same general Duck class were anything but their equals.

No previous Northampton Show has been so complete in the *Pigeon* classes; many of the birds, however, were placed too high to allow an inspection by either Judges or visitors. Pouters were the great feature in this division, and a grand lot they were. A singularly beautiful Blue hen of this variety was the winner of the silver cup for the best Pigeon in the Exhibition. Carriers were very fine, and in general high condition. Dragons were a much less perfect lot, but the variety class contained some very choice and rare breeds. It is a matter of regret that in defiance of all rules "trimming" was practised among the Pigeons by one or two parties, of course, where discovered, to the owner's disqualification.

Rabbits.—It is not often that the Rabbit fancier sees a collection of eighty-six, and some of them the best Rabbits in the country, and Northampton, we believe, this year has stood second only to York in number of entries. Too much praise cannot be awarded to the indefatigable Secretary, and his co-workers the Committee, who are most if not all "fanciers," themselves. The general arrangements were of the most satisfactory kind. Single Rabbits were exhibited and in large roomy pens, quite as large as we have been accustomed to see with a pair exhibited in them. The pens were fitted-up by Mr. G. Billett, of Portsmouth. The animals were well supplied with bedding, carrots, and oats.

The Lops (fourteen entries), were an excellent class, both in perfection of marking, length of ear, and condition, being the realisation of what a good "Lop" should be. The cup-buck was not, perhaps, as large as some shown, yet worthy of his position. Ears 22¼ by 5 inches. He was closely followed by the second-prize doe, with her gracefully hanging ears 21⅞ by 4⅞ inches, and of the third were 22 by 4⅝ inches—a valuable trio not often to be seen, and the very highly commended pens and highly commended pens were all far too good to escape a passing remark. We hope next year such success will induce the Committee to divide the Lops into at least three classes for colour.

Angoras (fourteen entries), were a good class, yet many of them had not been well "groomed," and the silk hair was entirely spoilt by its matted and uncared-for state. One or two suffered a little with the scurf on the nose. The fine showy doe which received the medal subscribed for, is the most splendid we have seen, and was in excellent condition. The second-prize doe was a fit companion for her, and the two with their smaller yet valuable and silky companion of Messrs. Morbey and Tassell, gave evidence of what this showy variety should be. All the commended pens were excellent.

The Himalayan (sixteen entries), were not quite as good as we have seen. There was an absence of uniformity of shade in the extremities. Some specimens were evidently moulting, and, consequently, not in the best state for exhibition. Yet all the prize and commended specimens were good.

The Silver Greys (eight entries), contained some well-silvered animals, and the three prize pens were all large, but a little lighter and more general silvering on the head would have made them nearer to perfection. All were does. The highly-commended pens were smaller than their more fortunate neighbours, yet well shaded.

"Any other variety" class (eighteen entries), contained some excellent specimens, and the first-prize Belgian Hare doe and the second are the finest we have seen, and for size approach the Patagonian, yet their ages were only nine and seven months. The Dutch buck as third formed a contrast in size at least, and is well marked.

The Selling class (sixteen entries), included some good specimens, and the first-prize Lop Tortoiseshell buck, and the second, an Angora buck, with the "Lop" buck of Mr. W. Cannan, were all good and entitled to the position they took, and the various commended pens require in justice to their worth our favourable notice. The subscription-cup and medal were in addition to the cup given by the Committee. The Judge, Mr. C. Rayson, exhibited some specimens of the Angora, Dutch, and Himalayan, Patagonian, and Silver-Grey, but not for competition.

Dorkings.—*Cock.*—1, J. Chisman, Southampton. 2, J. White, Warlaby. 3, R. Wood, jun., Clapton, Thrapstone. *c*, Hon. J. Massey, Milford House, Limerick; R. Sykes, Geddington. *Hen.*—1, Hon. J. Massey. 2, J. White. 3, F. Parlett, Great Baddow. *hc*, Hon. J. Massey; Rev. E. Bartrum, Great Berkhampstead; N. Russel, Oswestry. *c*, O. E. Cresswell; W. Bearpark.

Cochin-China.—*Cinnamon or Buff.*—*Cock.*—1 and Cup, J. W. Taylor, Ulverston. 2 and 3, H. Lloyd, jun., Handsworth. *hc*, A. Hanbury, Northampton; Capt. F. G. Coleridge, Wargrave; J. Bloodworth, Cheltenham; W. Humphreys; A. C. Ussher. *c*, D. Young. *Hen.*—1 and Cup, H. Tomlinson. 2, J. Sichel. 3, A. Bamford, Middleton. *hc*, J. N. Beasley, Northampton; A. Bamford; H. Lloyd, jun.; C. Bloodworth. *c*, S. Lear, jun., Burslem (2).

Cochin-China.—*Any other Colour.*—*Cock.*—1, J. Sichel, Timperley. 2, Capt. F. G. Coleridge. 3, R. S. S. Woodgate. *hc*, R. S. S. Woodgate; Rev. J. H. Gandy, Stanwick; Mrs. E. Clarke, Hartford, Huntingdon. *Hen.*—1, J. Taylor. 2, J. Sichel. 3, H. Lloyd, jun. *hc*, R. S. S. Woodgate, Pembury, Tunbridge Wells; E. Clarke.

Brahma Pootra.—*Light.*—*Cock.*—1, Rev. N. J. Ridley, Newbury. 2, J. Bloodworth. 3, J. T. Hincks. *c*, J. More, Rothwell, Kettering. *Hen.*—1, J. Bloodworth. 2, W. Stevens, Northampton. 3, J. More.

Brahma Pootra.—*Dark.*—*Cock.*—1 and 2, T. F. Ansdell, St. Helen's. 3, Rev. J. G. B. Knight, Danbury, Chelmsford. *hc*, H. Yardley, Birmingham; Hon. J. Massy; J. Chisman; J. Watts. *Hen.*—1 and 2, T. F. Ansdell. 3, J. Sichel. *hc*, H. Yardley; J. Watts; J. Mitchell. *c*, H. Yardley; Rev. J. G. B. Knight; Dr. Holmes, Whitecotes, Chesterfield; J. Watts; J. Earnshaw.

Spanish.—*Cock.*—1, Pickering & Duggleby, Driffield. 2, W. Smallwood, Wolverton. 3, H. Brown, Putney Heath. *hc*, H. Yardley; H. F. Cooper, Walsall. *c*, H. Wilkinson; H. Thorneycroft, Floore, Weedon. *Hen.*—1, J. Thresh, Bradford. 2, H. Brown. 3, W. Woodhouse, Lynn. *hc*, J. T. Parker, Northampton; J. F. Dixon, Cotgrave; W. Smallwood, Wolverton; G. Osborne, Northampton; H. F. Cooper. *c*, J. T. Parker; H. Wilkinson, Earby; W. R. Bull, Newport Pagnell.

Game.—*Black Reds.*—*Cock.*—1, W. Speakman. 2, T. Whitaker, Melton Mowbray. 3, A. E. Johnson, Wash-on-Deane, Rotherham. *Hen.*—1, S. Matthew, Stowmarket. 2 and 3, T. Whitaker. *hc*, B. Cox, Moulton; H. E. Martin.

Game.—*Any other Colour.*—*Cock.*—1, F. Sales. 2, W. Perrin, Nantwich. 3, E. Winwood, Worcester. *Hen.*—1, S. Matthew. 2, B. Cox. 3, E. Winwood. *c*, C. H. Kite, Nottingham.

Hamburghs.—*Golden or Silver-spangled.*—*Cock.*—1, R. H. Ashton, Mottram. 2, Ashton & Booth, Mottram. 3, E. F. Gardom, Newcastle, Staffs. *hc*, P. Collins, Daventry; E. Robinson. *c*, A. Goodrich, Northampton; B. Cox. *Hen.*—1, J. Love, Kingsthorpe. 2, W. Pinfold, Lower Weedon. 3, Ashton & Booth. *hc*, Capt. F. G. Coleridge; R. H. Ashton. *c*, A. Goodrich; A. Coleman.

Hamburghs.—*Gold or Silver-pencilled.*—*Cock.*—1, J. Webster, Kelbrook. 2, R. R. Parker, Ipswich. 3, W. K. Tickner, Ipswich. *hc*, H. & A. Gill, Rawtenstall; H. H. Thompson, Coleshill; G. Ashpole, Etwall Hall, Derby. *Hen.*—1 and *hc*, J. Edge. 2, J. Webster. 3, R. R. Parker. *c*, H. Moore; Capt. F. G. Coleridge; J. King, Oxford; C. Bloodworth.

Game Bantams.—*Black Reds.*—1, W. B. Jeffries, Ipswich. 2, Capt. T. Wetherell. 3, W. Adams, Ipswich. *hc*, W. F. Addie, Fulwood; Rev. F. Cooper Ampney; T. Redfern. *c*, Clews & Adkins; H. B. Smith, Broughton, Preston.

Game Bantams.—*Any other Colour.*—1 and 3, Rev. F. Cooper. 2, W. Adams. *c*, Pickering & Duggleby; G. Morling.

Bantams.—*Any other variety, not Game.*—1, B. S. Lowndes, Stony Stratford (Pekin). 2, H. Draycott, Leicester (Black). 3, J. Watts (Sebright). *hc*, C. Bloodworth (Black); J. Watts (Japanese); R. H. Ashton (Black). *c*, Miss Beasley (Japanese).

Any other Variety.—1 and Cup, T. Lichfield, Northampton (Golden-spangled Hamburgh). 2, W. Nottage. 3, W. Page, Northampton (Black-breasted Red). *c*, F. Hancock (Brown Red); W. Stevens.

Any other Variety.—*Cock.*—1, C. H. Smith (Crève-Cœur). 2 and 3, Rev. N. J. Ridley (Malay). *hc*, J. Partington; J. Cross, Appleby Vicarage, Brigg (Crève-Cœur); A. Darby (White Created Black Poland). *c*, W. Dring, Faversham

(Crève-Cœur); J. Cross (Houdan); J. Sichel (Crève-Cœur). *Hen.*—1, C. H. Smith, Radcliffe-on-Trent (Crève-Cœur). 2, J. Sichel (Crève-Cœur). 3, W. Dring (Crève Cœur).

SELLING CLASS (Special).—1, J. Walker (Spanish). 2, H. Eckford, Coleshill (Golden-pencilled Hamburgh). 3, H. Yardley. *hc*, H. Wilkinson (Spanish); T. Chambers, jun., Northampton; W. H. Tomlinson (Sultans). *c*, H. Yardley; H. Brown (Spanish); Rev. J. Worthington (Spanish); J. Mitchell (Duckwing Game); W. Johnson, Idle (Silver-spangled Polands); J. Ashworth, Marsden Heights, Burnley (Silver-spangled Bamburgh).

SELLING CLASS (Special).—*Cock.*—1, W. R. Boll. 2, R. Sykes (Dorking). 3, J. Bloodworth (Light Brahma). *hc*, H. Yardley; P. Collins (Golden-spangled Hamburgh); J. Sichel (Buff Cochin); W. A. Burnell (Buff Cochin); J. King (Silver-pencilled Hamburgh). *c*, H. Yardley; B. Cox (Game); W. F. Checkley, Moulton (Buff Cochin).

SELLING CLASS (Special).—*Hens.*—1, J. Walker, Sandford (Spanish). 2 and 3, J. Sichel (Buff). *hc*, H. Yardley; J. F. Dixon (Spanish); P. Collins (Golden-spangled Hamburgh). *c*, W. Nottage (Rouen Ducks); J. Tarry, Dallington (Golden-spangled Hamburgh); J. S. Price (Crève-Cœur).

DUCKS.—*Aylesbury or Rouen.*—1, 2, and 3, J. Hedges, Aylesbury. *hc*, Hon. J. Massey; T. Holton, Buckingham; P. Wise; J. Wright, Melton Mowbray. *Any other Variety.*—1 and 3, H. B. Smith (Fancy). 2, G. Ashpole, Etwall Hall, Derby (East Indian). *hc*, H. B. Smith (Fancy); J. Watts (Fancy); R. H. Ashton (Mandarin).

PIGEONS.

POUTERS.—*Cock.*—1, J. Barber. 2, J. Coleman, West Bromwich. 3, Mrs. Ladd, Calne. *vhc*, F. Gresham, Birkenhead. *hc*, H. Yardley; Mrs. Ladd; J. E. Palmer, Peterborough; E. Horner, Harewood (2). *c*, T. Waddington, Fenniscowles. *Hen.*—1 and Cup and 3, F. Gresham. 2, N. Hill, Upper Norwood. *vhc*, E. Horner. *hc*, Mrs. Ladd; W. R. Rose, Kettering; J. Barber; J. Coleman; E. Horner. *c*, Mrs. Ladd; J. E. Palmer; H. Pratt.

CARRIERS.—*Cock.*—1, T. Waddington. 2, E. Horner. 3, W. Massey. *hc*, H. Yardley; T. Chambers, jun.; A. Perry, Hardingstone; E. Horner. *c*, H. Yardley. *Hen.*—1 and 3, E. Horner. 2, J. Stanley. *hc*, H. Yardley; W. Crook, Swansea. *c*, R. Ashton.

TUMBLERS.—*Short-faced.*—1, E. Horner. 2, H. Yardley. 3, W. Woodhouse, Lynn. *Any other variety.*—1, W. Stevens. 2, H. O. Crane (Blue Beards). 3, R. G. Teebay, Burscough, Ormskirk. *c*, G. Oshorne; H. Chambers.

OWLS.—1 and Cup, C. L. Gilbert, Salisbury. 2, T. Waddington. 3, E. C. Stretch. *hc*, S. Holroyd, Mumps, Oldham; H. Yardley; J. Watts. *c*, R. Woods.

TURBITS.—1, J. Edge. 2, T. Waddington. 3, O. E. Cresswell. *hc*, O. Martin; L. Watkin.

JACOBINS.—1, C. L. Gilbert. 2 and 3, E. Horner. *hc*, H. Yardley; A. Storrar, Peterborough; C. Martin. *c*, J. S. Cater.

FANTAILS.—1, J. F. Loversidge. 2, E. Horner. 3, W. H. Tomlinson. *hc*, H. Yardley; J. T. Cater; J. Edge. *c*, Mrs. Ladd; H. Yardley; J. Walker

DRAGONS.—1, C. L. Gilbert, Salisbury. 2, H. Allsop. 3, S. Holroyd. *hc*, T. Waddington. *c*, H. Chambers; T. W. Mills, Walsall.

ANTWERPS.—1, H. R. Wright, Birmingham. 2 and 3, J. Stanley, Blackburn. *c*, H. Yardley (2); J. Stanley.

ANY OTHER VARIETY.—1, J. Watkins (Nun). 2, E. Horner. 3, T. Waddington. *hc*, H. Yardley; S. Holroyd; W. Crook (Ice); C. L. Gilbert (Maltese); J. S. Price (Blue Runts). *c*, J. T. Cater, *Trimmed*, J. Watts.

SPECIAL SELLING CLASS (Single Bird).—1, T. Chambers, jun. (Carrier). 2, J. Walker, Burslem. 3, S. Holroyd. *vhc*, W. Massey. *hc*, H. Yardley; W. Massey (Red Barb); F. Sabbage, Northampton; F. Gresham, Shefford (Pouter); Spence and Styles. *c*, H. Yardley; H. A. Saddington (Owl); E. Horner; S. Holroyd.

SPECIAL SELLING CLASS.—1, T. Chambers, jun. (Carriers). 2, J. P. Fawcett, Whitby. 3, T. C. Marshall (Hyacinths). *hc*, W. Nottage (White Pouters); W. Bunmer, Spalding (Carriers); E. Walker (Carriers); W. Stevens; J. Edge; W. Woodhouse. *c*, H. Yardley; W. Reddihough, Calne (Pouters); G. W. Mullis, Northampton (Yellow).

ANY VARIETY.—1, T. Chambers, jun. (Carriers). 2, W. Nottage, Northampton. 3, Miss E. Saddington, Northampton (Owls). *hc*, W. Nottage (Swallows); C. Higgins (Carriers); J. Adams. *c*, W. Humphreys.

RABBITS.

LOP-EARED.—1 and Cup, T. E. Terry, Tong. 2, A. H. Easten, Hull. 3, W. H. Webb, Cosely, Bilston. *vhc*, T. E. Terry (2); H. Cawood, Thorne. *hc*, A. H. Easten; J. Irving, Blackburn; J. E. Palmer, Peterborough. *c*, J. H. Sharp, Melton Mowbray.

ANGORA.—1 and Medal, W. Whitworth, jun., Longsight. 2, W. Cory. 3, Morbey & Tassell, Northampton. *vhc*, A. R. Easten; A. F. Cory, Northampton; Morbey & Tassell. *hc*, C. King.

HIMALAYAN.—1, A. L. Pearce. 2, Morbey & Tassell. 3, J. Boyle, jun., Blackburn. *vhc*, W. H. Tomlinson, Newark; J. Boyle, jun.; W. Whitworth, jun. *hc*, T. E. Terry; W. Whitworth, jun. *c*, R. Leggott, Thorne.

SILVER-GREYS.—1 and Cup, J. Irving. 2 and 3, T. E. Terry. *vhc*, Morbey and Tassell. *hc*, C. King, St. John's Wood.

ANY OTHER VARIETY.—1, W. Whitworth, jun. 2, H. B. Massey. 3, Morbey and Tassell (Dutch). *vhc*, Morbey & Tassell (Dutch); C. Martin, Kettering (Dutch); W. Humphreys. *hc*, Morbey & Tassell (Patagonian); W. Whitworth. *c*, W. Whitworth, jun.

SPECIAL SELLING CLASS.—1, C. King (Tortoiseshell). 2, T. Adams, Northampton. 3, W. Canner, Leicester (Lop-eared). *vhc*, T. E. Terry (Angora); A. H. Easten (Lop-eared). *hc*, Morbey & Tassell (Himalayan and Blue Dutch); W. Bearpark, Ainderby Steeple.

CATS.

TORTOISESHELL.—1 and *hc*, E. Horner, Harewood. 2, S. Parbery, Kingsthorpe. 3, C. Hadson, Northampton. *c*, C. Old, Northampton.

TABBIES (Any Shade).—1, W. Bates, Boughton. 2, Mrs. Watts. 3, Mrs. Morbey Northampton. *hc*, J. Bosworth, Northampton. *c*, Miss A. Lawton, Northampton.

BLACK.—1, G. Edwards, Northampton.

WHITE.—1, Withheld. 2, C. Betts, Northampton.

BLACK AND WHITE.—1 and 3, Withheld. 2, J. C. Sibley, Northampton.

LONG HAIR (Any Shade).—1, E. Cumpston, Pitsford, Northampton. 2, Mrs. A. Jeffery, Northampton. Extra 2, — Marsh, Northampton. 3, Miss Hales, Canterbury. *hc*, T. Weightman, London. *c*, B. Cox, Moulton.

ANY OTHER VARIETY.—1 and 3, Withheld. 2, — Ward, Northampton.

KITTENS.—Special Prize, Miss A. Sergeant, Northampton.

Mr. Edward Hewitt, of Birmingham, judged the *Poultry;* Mr. Tegetmeier, of London, the *Pigeons;* Mr. Rayson, the *Rabbits;* and the *Cat* prizes were awarded by Mr. Billett.

BAILDON ORNITHOLOGICAL SOCIETY'S SHOW.

THIS was held on the 1st and 2nd inst. The following awards were made :—

BELGIAN.—*Clear Yellow or Ticked.*—1 and 2, J. Hart, Burley, Leeds. 3, R. Robinson, Middlesbrough-on-Tees. *hc*, J. Stirk, Sutton, Crosshills. *c*, J. N. Harrison, Belper. *Clear Buff or Ticked.*—1, J. N. Harrison. 2, J. Hart. 3, J. Stirk. *vhc*, T. Fawcett, Baildon.

NORWICH.—*Clear Jonque.*—1, Moore & Wynne, Northampton. 2, W. Needler, Hull. 3, J. Shepherd, Lidget Green, Bradford. *vhc*, R. Fearnley, Rawdon, Leeds. *Clear Buff.*—1, Moore & Wynne, Northampton. 2, W. Needler, Hull. 3, J. Clemison, Darlington. *hc*, J. Shepherd.

NORWICH.—*Even-marked Yellow.*—1, Moore & Wynne. 2, R. Hawman, Middlesbrough. *Even-marked Buff.*—1, Moore & Wynne.

NORWICH.—*Ticked or Uneven-marked Buff or Yellow.*—1, J. Spence, Sunderland. 2, J. Cockshott, Fearncliffe, Bingley. 3, Barwell & Golby, Northampton. *Crested.*—1, Moore & Wynne. 2, W. Watson, jun., Darlington. 3, J. Shepherd. *vhc*, S. Elliott, jun., Liskeard.

COPPY.—*Yellow, with Clear Crest.*—1, W. Hutton, Baildon. 2, W. Shackleton. 3, W. Cotton, Middlesbrough-on-Tees. *Buff, with Clear Crest.*—1, P. Rawnsley. 2, W. Rouse, Bradford. 3, L. Belk. *Buff or Yellow, with Dark or Grey Crest.*—1, W. Hutton. 2, T. Fawcett. 3, W. Shackleton.

LIZARD.—*Golden-spangled.*—1, R. Ritchie, Darlington. 2, J. Taylor, Middlesbrough-on-Tees. 3, J. N. Harrison. *Silver-spangled.*—1, W. Watson, jun. 2, J. Wilkinson, Great Horton. 3, R. Ritchie. *vhc*, J. N. Harrison.

YORKSHIRE.—*Clear Yellow.*—1, H. Fryer, Baildon. 2, W. Hutton, Baildon. 3, G. Gott. *vhc*, J. Shepherd. *Clear Buff.*—1, T. Fawcett. 2, W. Hutton. 3, J. Fawcett.

YORKSHIRE.—*Even-marked Yellow.*—1, P. Rawnsley. 2, J. Stevens, Middlesbrough. 3, M. Burton, Middlesbrough-on-Tees. *vhc*, R. Hawman. *Even-marked Buff.*—1, P. Rawnsley. 2, J. Moorhouse, Little Horton. 3, W. Anderton, Baildon. *hc*, J. Stephens, Middlesbrough.

YORKSHIRE.—*Ticked or Uneven-marked Yellow or Buff.*—1, J. Stephens. 2, P. Rawnsley. 3, G. Gott, Calverley. *vhc*, E. Brook, Little Horton; L. Belk, Dewsbury.

CINNAMON.—*Jonque.*—1, Barwell and Golby. 2, I. Holroyd, Horton. 3, Moore and Wynne. *Buff.*—1, Barwell & Golby. 2, Moore & Wynne. 3, E. Stansfield. *Marked or Variegated.*—1, J. Stevens. 2, M. Burton. 3, I. Holroyd. *vhc*, L. Belk.

CAGE OF SIX CANARIES.—1, Mrs. D. Keg, Girlington. 2, J. Fawcett. 3, J. Cockshott.

SELLING CLASS.—1, W. Hutton. 2, T. Fawcett. 3, J. Fawcett. *vhc*, Moore and Wynne.

GOLDFINCH MULE.—*Even-marked.*—1, J. Stevens. 2, R. Hawman. 3, W. and C. Burniston, Middlesbrough-on-Tees. *vhc*, W. Needler, Hull. *Dark.*—1, E. Stansfield, Bradford. 2, M. Burton. 3, J. Stevens. *hc*, S. Gaunt, Armley.

MULE.—*Any other variety.*—1, J. Spence. 2, E. Stansfield. 3, J. Stevens. *hc*, A. Webster, jun., Kirkstall.

GOLDFINCH.—1, Mrs. D. Keg. 2, N. Whitaker, Baildon. 3, J. N. Harrison. *hc*, W. Watson, jun.

BULLFINCH.—1, W. & C. Burniston. 2, F. Waterhouse. 3, R. Smith, Rawden.

LINNET.—*Brown.*—1, J. N. Harrison. 2, W. & C. Burniston. 3, A. Webster, jun.

LARKS.—1, R. Whitehead, Guiseley. 2, T. Rennard, Baildon. 3, T. Goodall, Baildon. *hc*, Mrs. D. Keg.

BRITISH BIRDS.—*Any other variety.*—1, W. & C. Burniston. 2, A. Pemberton. 3, A. Webster, jun. *hc*, W. Anderton.

PIGEONS.

OWLS.—*English.*—1, H. G. Poole, Bradford. 2, D. Riddiough, jun., Bradford. 3, R. Woods, Mansfield. *c*, W. Lund, Shipley.

ANTWERPS.—*Short faced.*—1, H. & W. Stanhope, Eccleshill. 2, Shelton and Smith, Idle. 3, Clayton & Bairstow, Girlington. *hc*, J. Sharp, Baildon. *c*, J. Brooke; J. Brearley, Windhill.

ANTWERPS.—*Working.*—*Cock.*—1, W. Ellis, Idle. 2, Clayton & Bairstow. 3, D. Riddiough, jun. *hc*, J. Mann. *c*, A. Webster, jun; J. Brearley; T. Hey, Shipley; T. Speight, Bradford; W. Lund. *Hen.*—1, D. Riddiough, jun. 2, Clayton & Bairstow. 3, E. Beldon, Bradford. *c*, A. Webster, jun.

CARRIERS.—1, R. Andrews, Eccleshill. 2, W. Lund. 3, J. Watkins, Marden.

DRAGOONS.—1 and 2, Clayton & Bairstow. 3, H. & W. Stanhope. *hc*, M. Bentley, Baildon; D. Riddiough, jun.

TURBITS.—1, H. G. Poole, Bradford. 2, W. Dugdale, Burnley. 3, W. Lund. *hc*, Clayton & Bairstow.

TUMBLERS.—*Long-faced.*—1, E. Beldon. 2, A. Bentley. 3, W. Lund.

ANY OTHER VARIETY.—1 and 2, E. Beldon. 3, W. C. Dawson, Otley.

SELLING CLASS.—*Pair or Single.*—1, E. Beldon. 2, H. & W. Stanhope. 3, W. Lund.

JUDGES.—*Cage Birds:* Mr. J. Calvert, York. *Pigeons:* Mr. W. Cannan, Bradford.

THE DRAGON PIGEON.

THIS very pretty Pigeon seems to be almost the rage of the day amongst high-class fanciers, and I have no doubt ere long that Dragons will stand much higher in the fancy than they do at present. But the question is the proper standard of the bird. In your Journal of February 29th an article on this subject, signed "CARRIER," advocates Black as the proper colour of a Dragon. Now as regards this I beg to differ, as I maintain that colour does not exist in this particular breed. The only acknowledged six colours are Silver Duns with black bars and red bars; Blues with black bars; Blue Chequers; Yellows; Reds; and Whites. Of these, Blues stand first. Some fanciers advocate spindle-beaked birds, but I say this is a grave mistake, which I have found out during my fifteen-years experience as a breeder of Dragons. Spindle beaks never obtained me a prize but once, and then they did not deserve it.

Next to the Blue come Silver Duns, and upon this colour I give my ideas of the Dragon. The beak should be white, stout, perfectly straight, and almost free from wattle, in length not less than 2 inches. The eye wattle should be circular, perfectly smooth, and of a fleshy colour, with a bold, full, defiant eye. The bird should be very close-feathered, with the carriage of a Carrier, and similar in size, with a broad chest, shoulders well forward, with narrow jet black bars, the narrower the better, as they are the greatest point of excellence in the bird. The flight feathers should be equal in number. It is a very easy matter to breed this colour with brown bars, red bars, and quite as easy to get jet black bars when properly crossed. Mr. Frank Graham, whom I take as an authority on Dragon breeding, concurs as nearly as possible with my ideas.—JOHN G. DUNN, 55, *Westmoreland Road, Newcastle-upon-Tyne.*

EXHIBITING CANARIES.

YOUR correspondent, Mr. W. A. Blakston, having ventilated in his reports on the late Crystal Palace Show, and very rightly so, a number of frauds and other matters connected with the exhibition of birds, I shall be glad if you will permit me to offer some relative remarks. In reference to staining birds I

cannot speak so fully as I could have desired, never having tried any experiments in that direction; but having some knowledge of chemistry, I may express the opinion that birds can be dyed by a person experienced in that art so as to defy detection. I, like Mr. Blakston, have a difficulty in conceiving how the Buff Norwich birds are done, but I am assured by an experienced fancier in Norwich that it "can be done," and "is done." I wish some person who knows the secret would give it publicity, as such dishonest practices are sure ultimately to have a baneful effect on the "fancy" at large. I think some means may be devised to sift this out. If a few clubs would unite in defraying the expense, no doubt some experienced dyer or experimental chemist could be found to solve the mystery, and set the matter at rest.

With regard to trimming, I think this practice is quite as culpable in its blighting effects, and, no doubt, many of the fanciers who retire from the ranks from "causes beyond our ken" are disgusted with the malpractices which have been perpetrated upon them from time to time by some unscrupulous vagabond, who trades upon the enthusiasm of a newly-fangled and ardent fancier. They do not generally attempt to gull experienced fanciers knowingly, although it is not, I believe, from any lack of disposition on their part to do so. Something surely can be done to lessen this evil likewise; some alteration in the classes, or some fixed rules, ought to be used by every committee who hold an open show. All experienced fanciers know what a difficult matter it is to breed an Evenly-marked bird, and how many there are within an ace of being perfect. A fancier may breed a nice Evenly-marked wing bird, with regular eye marks, and—no, I will not digress from my subject to give you a description of the watchful and anxious care that is bestowed upon every marked bird as he begins to show "his marks"—not *à la* Tichborne—although a little tattooing is too frequently resorted to when Nature has not accomplished her task in a manner satisfactory to the "claimant" of the would-be real Roger, or I should certainly break my promise at the beginning of this commentary.

Well, I daresay some of my disappointed brother fanciers (and many, including myself, have been often sorely disappointed) in discovering the diabolical black feather on one side of the tail, or the dark feather on the outer edge of the shoulder of the wing, or the two small feathers in the saddle, or the small tick behind the head, and so forth, although I have no doubt that many people make very light of a tail feather, or even a few coverlets or saddle feathers, and readily dispose of them. Now, my principal object is to get rid of this gross fraud, and I think that every person wishful to promote the fancy will willingly add his quota to devise some means for this very desirable end. I think that all birds with wing marks and eye marks, and having a solitary black feather, or even one or two on each side, should be shown in the Evenly-marked classes, and that the single feather merely count one point against the bird; and with regard to one on each side, I would leave it to the discretion and opinion of the judges to decide, as one man fancies a four-marked bird, whilst another prefers a six-marked bird, and this principle, in my opinion, acts the same as handicapping winning horses for future performances, and so equalising their chances.

I think a book of rules should be drawn up and submitted to the committees of every bird show in the kingdom, and all requested to give their views, so that ultimately a code could be established for the guidance of the whole. For example, I think that a bird having nine clear flights in each wing, and the secondaries all black, is a perfect wing-marked bird. I prefer a bird with circular eye marks, neither too heavy nor yet too light; but how few circular eye-marked birds are there to be found? Well, it probably does not matter, but they could very readily be counted, I know. Few birds are alike in eye marks; some are marked behind the eye, and if in a line with the centre of the eye I term them "back centres," and if in front, "front centres." Now, I think a bird marked both in front of and behind the eye is much more perfect than a bird marked simply in front, or at the back of the eye only. Then there requires great judgment in defining how these should be treated. I think a heavy-winged bird should have heavy eye marks, and a light-winged bird light eye marks, so as to be, to use an artistic phrase, "well-balanced in its composition," and I think this a great element in judging; in addition to this you have size, shape, colour, closeness of feather, carriage, and many other minor points to consider, that really when you think of it, one dark feather in the tail is a very small difficulty to deal with. In the Even-marked class I consider that all birds with even wings and cap, even wings alone, eye marks alone, wing marks, cap, and eye marks, and any of the above with a dark feather or feathers in their tails, are equally entitled with the true Four-marked bird to compete for Evenly-marked honours, and I make no doubt but my opinion will be very generally sustained throughout the "fancy" at large.

I quite concur with Mr. Blakston regarding the Evenly-marked or Variegated Cinnamons, that it is necessary to save this very beautiful variety from becoming a reminiscence of the past. I think there is not a more beautiful and delicately pretty bird in all the various classes of the large Canary family than this delectable variety. Markings are, in my opinion, the great criterion of excellence, and the most difficult feature to obtain.

With regard to the north countrymen preferring size and contour to rich colour, preferred, as Mr. Blakston states, by the southern fanciers, this, I think, could easily be settled. Let even marks be regarded as the distinguishing point of perfection as a "basis of future operations," and then leave to each judge to exercise his own judgment as to whether the colour or the size, &c., predominate—that is, let him weigh these points together and decide accordingly. I think there ought to be three classes, if not four, at every good show for these birds, and they should be classed as follows:—

Evenly-marked Yellow Cinnamon.
Evenly-marked Buff Cinnamon.
Variegated Buff or Yellow (uneven-marked).
Evenly-marked and Crested Cinnamon.

There are a great many birds of the last class now in existence, and I find them greatly and justly esteemed; and now that the Norwich birds are so very plentiful, and so many people appear to be getting tired of them, I am certain it only wants a beginning, and I hope that some judicious secretary or committee of management may see it to his or their interest to adopt the suggestion. I am sure it would pay well at the Crystal Palace, as it is very unsatisfactory to send a Buff bird competing against a Yellow. The same remark, of course, is objectionable to my having put the Unevenly-marked Yellow and Buff together, but I beg to observe that I merely suggest it as an experiment to see if it will pay, and if so, as I doubt not, then the classes can readily be divided. I hope that some other fanciers may take up the cue and make a few "cannons and pockets," and that you will considerately allow all intelligent communications a space in your Journal, which has been a useful and valuable medium for the extension and improvement of the science of ornithology.—Robert C. Wallace, *Berwick-on-Tweed*.

WINTERING BEES.

I have two apiaries situated about two miles distant from each other. One I will call my home apiary, and the other my off-hand farm. In the former I have twenty-six stocks of beautiful Ligurians, and in the latter twenty stocks, consisting of black bees and hybrids; for as soon as I discover any sign of impurity in a Ligurian stock, it is at once removed to my "off-hand farm." This will sometimes happen in spite of every care and attention.

I have wintered all my bees in both apiaries on their summer stands, except two stocks which I found late in the autumn to be rather weak. I took these two stocks into my bee house, a kind of summer-house, which I constructed about ten years ago, and in which I have at the present time twelve stocks of Ligurians. These two stocks have been taken from the bee house and put on their summer stands on fine days all through the winter, in order that they might avail themselves of an airing "on the wing." Unlike "B. & W.," I have the pleasure to state that I have not lost a single stock out of forty-six during the winter, and I have hope, now the season is so far advanced, of saving the whole of my stocks, as I have examined most of them to-day (March 4th), and find that I have not a had or doubtful stock amongst them. With the exception of the two stocks already referred to, all were well provisioned for the winter in October last. In conclusion I may say, whatever the coming summer may be, that I have never during thirty years wintered bees so successfully.—Wyatt J. Pettitt, *Hall of Apiculture, Dover*.

APIARIAN NOTES.

Brown Sugar not Suited for Winter Feeding.—In the winter of 1860-61, after an unfavourable honey season, my bees were fed-up in the autumn with moist sugar and beer boiled into a thick syrup. Owing to a cold and protracted winter they were for some weeks unable to come out to relieve themselves, and when the weather became warmer I found that the bees were severely affected with diarrhœa or dysentery, whilst those living upon honey were not so affected. The bees survived, but were so much reduced in strength that they were not ready to swarm until the end of June, whilst the generality of hives in the locality had swarmed three weeks or a month earlier. Since that date I have always used either lump dust or crushed lump sugar for winter supplies, and have found bees living upon syrup made by boiling 3 lbs. of sugar to 2 lbs. of water, in all respects quite as strong and healthy as those living entirely upon their natural food.

Damp greatly Remedied by Ventilation.—I observe that Mr. B. Fox complains that his bees have suffered severely from the excessive moisture of the present winter. Mine are, and always have been, in a state of perfect health, and comparative

dryness, in consequence of very free ventilation. All the bees are located in Woodbury hives. In the latter part of the autumn I annually remove two frames from each hive, leaving the bees eight frames containing a sufficient supply of food to carry them safely on to the end of March; the bungs are removed from the crown boards, and pieces of perforated zinc placed over the apertures, so that the air can pass freely between the combs and find vent at the top. The bees never suffer from the most intense cold when thus exposed, as it is cold and damp combined, and not dry cold, which proves fatal to hives not ventilated.

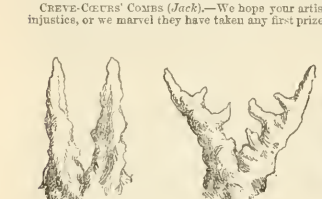
The hives are all on separate stands in the garden, and each hive is covered with a loose outer cover, with a space of about three-quarters of an inch between the hive and cover, surmounted with a loose top. The air passes without the least obstruction between the inner and outer box, and carries off at once any vapour which emanates from the interior of the hive; and owing to the space which exists between the top of the frames and the crown board, the ventilation throughout the hive is quite perfect, as vapour rising up from between any of the combs finds its way at once into this space, and is in full communication with the central hole in the crown board. Towards the end of February the bungs are replaced, and full or empty combs, as circumstances may dictate, are put into the hives later in the season, to supply the place of those which were removed in the autumn.—J. E. B.

OUR LETTER BOX.

Periodical Literature (*A Very Old Subscriber*).—The writer is well known to us, and the comments need no notice.

Chickens Drooping and Dying (*D. A.*).—We imagine your chickens die of cramp. We fancy the greenhouse is paved with bricks, and the apple-closet floored with boards. Both are as bad as can be, and both produce death from cramp. Move the chickens; put them where they can have sunshine. Discontinue the rice. For an immediate stimulant give some bread and ale twice or three times per day. Move them on to the earth. Put the hen under a rip where she is sheltered from draught and rain. See that the rails are wide enough apart to allow the chickens to get in and out easily, and allow them a free run on grass if possible. Let them also have free access to dry dust and rubbish. Keep the hen shut up for six or seven weeks at least, and you will not lose the chickens. Feed on grits, bread, bread and milk, chopped egg, chopped cooked meat, and bruised corn.

Greve-Cœurs' Combs (*Jack*).—We hope your artistic powers do your birds injustice, or we marvel they have taken any first prizes. Neither of the combs



1. 2. 3.

you have drawn is correct, inasmuch as they all open far too much at the points. We here show what they should be. They are the horns rising from the cloven heart from which they take their name. Of these three we prefer No. 2.

Preserving Eggs (*R. H. F.*).—We follow only one plan of keeping eggs. It is to put them in some slacked lime just stiff enough to keep them in the position in which they are placed. Then pour slacked lime over them till they are covered. Leave it till it is hard. Go on till the vessel (a bread or other pan) is quite full. The eggs should be put small end downwards.

Cochin Pullets Ceasing to Lay (*A. M.*).—Our impression is, your fowls are either too fat, or they suffer from extreme constipation. Either complaint would interfere with laying, and that would account for the appearance of your fowls, and their disinclination to walk. We advise you to give all that are affected a full tablespoonful of castor oil, and repeat it every other day till they are better. Feed sparingly for a day or two. Discontinue the wheat, and feed for a few days on oatmeal only. If some recover, while others seem to suffer, take a wing or tail feather, dip in castor oil, and pass it down the egg passage. If an egg is the cause it will be laid, and the cure is instantaneous.

Failure of Early Sittings (*E. G. R.*).—If condemned because the early eggs hatched badly half the cocks in England would be sacrificed. In the early season cocks are espricious in their favours, and much more continent than they are later in the season, when the weather is warmer. They are almost monogamous in January and followers of Mormon license in June. Our advice is—keep him. The weather in January is bad for eggs.

Cochin Hen Lame (*M. L.*).—The defect of the hen would seem to be one of sight, or she would pick from the ground. We advise you to wash her face and head with cold water and vinegar. She does not eat the food from the ground because she cannot see it. Continue the castor oil every other day, and give her some pills of camphor the size of a garden pea, two every day.

Rouen Ducks' House (*L. H. R.*).—Ducks require no expense as to their lodging. We have seen as good ones in an old pigstye as we ever saw anywhere. It should be floored with hard earth, or pitched with small stones, smooth at top lest they lame the birds. Oats, oatmeal, gravel and some flesh. They should be confined for a time, as they gain weight by it, but they must have the opportunity of washing for the sake of plumage. They should weigh 18 lbs. at least. The birds you mention are not worth the money unless they are perfect.

Dover and Cinque Ports Show (*Matthew*).—The Secretary informs us that the prize schedule can now be had on application.

Canaries (*B. M.*).—Write to Mr. W. A. Blakston, 22, Norfolk Street, Sunderland.

METEOROLOGICAL OBSERVATIONS,

Camden Square, London.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude 111 feet.

Date. 1872. Feb.	A.M. Barometer at 32° and Sea level	Hygrometer. Dry.	Hygrometer. Wet.	Direction of Wind.	Temp. of Soil at 1 ft.	In the Day. Shade Temperature. Max.	Shade Temperature. Min.	Radiation Temperature. In sun.	Radiation Temperature. On grass	Rain.
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 6	29.909	50.3	45.9	S.E.	45.4	61.1	36.8	101.2	31.9	—
Th. 7	29.479	44.6	43.0	N.	45.3	60.0	36.1	99.5	29.8	0.120
Fri. 8	29.475	51.0	50.0	S.E.	46.0	57.0	42.4	90.3	39.6	—
Sat. 9	29.894	44.8	43.9	N.W.	46.1	53.8	39.2	90.1	34.0	—
Sun. 10	30.854	42.1	40.3	N.W.	45.9	50.2	29.8	93.5	26.2	—
Mo. 11	30.313	34.6	32.8	N.	44.6	53.6	28.4	83.8	27.6	—
Tu. 12	30.144	41.2	40.7	S.E.	43.3	54.0	31.5	84.2	29.2	0.030
Means	29.938	44.1	42.4		45.2	55.7	34.9	91.8	31.0	0.150

REMARKS.

6th.—A beautiful day, morning, noon, and night.

7th.—Very fine, though sometimes rather dark, fine after 11 A.M., rather dull at night, and colder than in the morning.

8th.—Fine morning, rather dull about noon, then very fine afternoon and evening.

9th.—Dull early, but fine at 9 A.M., and so continued all day and night.

10th.—Fine early, but clouded over about 9 A.M., then fine bright day except for a short time about 5 P.M. when there was a peculiar dark mist, but clearing off before night.

11th.—Thick, hazy, and cold during much of the day, a little sunshine in the day, and warmer at night.

12th.—Very hazy at 8 A.M., but soon cleared off, becoming fine during the remainder of day except a few drops of rain between 7 and 8 P.M. Pyrus japonica in magnificent bloom.

A week of lower temperature, the difference caused chiefly by the coldness of the nights, the mean temperature of which being only 31.0°, and one night sinking to 26.2°.—G. J. Symons.

COVENT GARDEN MARKET.—March 13.

Prices remain without much alteration, and business is of its usual character. There is little to influence the wholesale markets, the weather permitting of shipping arrivals being regular and unimpeded.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples	½ sieve	2 0 to 4 0	Melons	each	0 0 to 0 0
Apricots	doz.	0 0 0 0	Mulberries	lb.	0 0 0 0
Cherries	doz.	0 0 0 0	Nectarines	doz.	0 0 0 0
Chestnuts	bushel	10 0 20 0	Oranges	₱100	4 0 10 0
Currants	½ sieve	0 0 0 0	Pears, kitchen	doz.	2 0 4 0
Black	do.	0 0 0 0	dessert	doz.	2 0 8 0
Figs	doz.	0 0 0 0	Pine Apples	lb.	6 0 10 0
Filberts	lb.	0 6 1 0	Quinces	doz.	0 0 0 0
Cobs	lb.	0 6 1 0	Raspberries	lb.	0 0 0 0
Grapes, Hothouse	lb.	0 6 15 0	Strawberries	₱100	2 0 4 0
Gooseberries	quart	0 0 0 0	Walnuts	bushel	10 0 25 0
Lemons	₱100	7 0 10 0	ditto	₱100	1 0 2 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes	doz.	4 0 to 8 0	Leeks	bunch	0 2 to 0 6
Asparagus	₱100	6 0 10 0	Lettuce	doz.	1 0 2 4
Beans, Kidney	per 100	2 0 4 0	Mushrooms	pottle	1 0 2 0
Broad	bushel	0 0 0 0	Mustard & Cress	pannet	0 2 0 0
Beet, Red	doz.	1 0 3 0	Onions	bushel	2 0 4 0
Broccoli	bundle	0 9 1 6	pickling	quart	0 6 0 0
Brussels Sprouts	½ sieve	1 6 3 0	Parsley per doz. bunches		3 0 4 0
Cabbage	doz.	1 0 1 6	Parsnips	doz.	0 9 1 0
Capsicums	₱100	0 0 0 0	Peas	quart	0 0 0 0
Carrots	bunch	0 6 0 0	Potatoes	bushel	2 0 3 0
Cauliflower	doz.	2 0 5 0	Kidney	do.	3 0 5 0
pickling	doz.	0 0 0 0	Radishes	doz. bunches	0 6 1 6
Endive	doz.	2 0 0 0	Rhubarb	bundle	0 3 1 0
Fennel	bunch	0 3 0 0	Savoys	doz.	0 3 1 0
Garlic	lb.	0 3 0 0	Sea-kale	basket	1 0 2 0
Herbs	bunch	0 3 0 0	Shallots	lb.	0 4 0 6
Horseradish	bundle	3 0 4 0	Spinach	bushel	3 0 4 0
			Tomatoes	doz.	0 0 0 0
			Turnips	bunch	0 3 0 9
			Vegetable Marrows	doz.	0 0 0 0

POULTRY MARKET.—March 13.

Small supply and moderate trade.

	s. d.	s. d.		s. d.	s. d.
Large Fowls	4 0	to 4 6	Partridges	0 0	to 0 0
Smaller ditto	3 6	4 0	Hares	0 0	0 0
Chickens	3 0	3 6	Rabbits	1 5	1 6
Goslings	7 6	8 0	Wild ditto	0 9	0 10
Ducklings	4 0	4 6	Pigeons	0 10	1 0
Guinea Fowl	3 0	3 6	Pheasants	0 0	0 0

WEEKLY CALENDAR.

Day of Month	Day of Week.	MARCH 21—27, 1872.	Average Temperature near London.			Rain in 43 years.	Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	Days.	m. h.	m. h.	m. h.	m. h.	Days.	m. s.	
21	Th	Meeting of Royal and Linnean Societies.	50.7	32.5	41.6	19	1 af 6	14 af 6	59 af 1	10 5	12	7 10	81
22	F	Cambridge Term ends.	50.4	34.3	42.3	20	59 5	16 6	12 3	34 5	13	6 52	82
23	S	Oxford Term ends.	50.7	33.1	41.9	18	56 5	17 6	25 4	54 5	14	6 33	83
24	Sun	6 Sunday in Lent.—Palm Sunday.	48.7	31.7	40.2	16	54 5	19 6	40 5	10 6	15	6 15	84
25	M	Lady Day.	50.9	32.8	41.9	16	52 5	20 6	56 6	27 6	○	5 56	85
26	Tu		51.8	32.6	42.2	16	49 5	22 6	13 8	42 6	17	5 38	86
27	W		54.1	34.1	44.1	14	47 5	23 6	34 9	0 7	18	5 19	87

From observations taken near London during forty-three years, the average day temperature of the week is 51.0°; and its night temperature 33.0° The greatest heat was 75°, on the 27th, 1830; and the lowest cold 14°, on the 25th, 1850. The greatest fall of rain was 0.68 inch.

POT-CULTURE OF FIGS.

THE Fig is now rather extensively grown both out of doors and under glass, but it is very seldom that suitable accommodation is afforded for its culture. When a house is exclusively devoted to this fruit, and a judicious selection of sorts has been made, with proper attention the result is a continuous succession of fruit of the most luscious description.

Whether grown in pots or planted out in a prepared border the Fig is easily cultivated. One of the best Fig houses of which I have any knowledge is that at Sion House, Isleworth. It is a lean-to, and, as far as I can recollect, 60 feet long by 18 feet wide, and of proportionate height. The Figs are planted close to the front wall, and trained to wires fixed horizontally across the rafters, another set of plants being trained to the back wall. Of course the trees which had the full benefit of the light and heat produced abundant crops of fine fruit, but I also noticed that those planted on the back wall, although very much shaded, succeeded remarkably well. I am writing now of what I saw there some years ago.

Of all fruits I think the Fig is the best adapted for pot-culture, and this is the method usually employed, at least in gardens of somewhat limited extent. Ten or twelve years ago my duty in a large commercial establishment was the charge of the house in which the Fig trees were cultivated in pots. The house was built on the ridge-and-furrow principle, with glass sides and ends, the brickwork being carried up only about a foot or 18 inches above the ground-line. The young plants were propagated and grown for some time in another structure, as that referred to was not provided with a heating apparatus. The house was kept rather close by day, and shut-up early in the afternoon. Under these circumstances the trees grew rapidly, and though quite young produced excellent fruit. In my present situation I have no house exclusively devoted to Figs, but I obtain a tolerably good and continuous supply from the pot trees, which are placed in early and late vineries, against the back walls of Cucumber and Pine houses, or in any other convenient place. Tolerably good fruit may sometimes be obtained from under the shade of Vines, but it is not to be compared with that from trees more fully exposed to light and air.

The Fig is easily propagated either from single eyes or cuttings. The compost should be sandy loam, with a little leaf mould added, and a single eye or cutting should be inserted in the centre of a 60-sized pot. To facilitate the emission of roots, the pots should be plunged in a bottom heat of 85° or 90°. The night temperature of the house should be 55°. Under such circumstances the pots will soon be filled with roots, and the buds will start into active growth. One centre shoot only should be trained up until the plant is a foot high, when it ought to be stopped. Indeed, for whatever purpose the tree is intended, whether as a pot tree or for planting-out, there ought to be a clear stem of at least a foot high. When the small pots are full of roots, and the young Fig trees are growing freely, these ought to be shifted into pots a size larger; the Fig tree grows very rapidly, and requires a liberal shift. The compost which I have found most suitable is turfy loam and pulverised bones. If the loam is poor, an eighth part of decayed manure should be added. An over-rich compost is not desirable, as it causes the production of gross sappy wood, which is an evil to be avoided in the case of the Fig, as well as of all other fruit-bearing trees.

Our plants were started into growth in a night temperature of 55°; but after signs of growth are apparent the heat should be gradually increased, and if the object is to obtain large plants in the shortest possible time the night temperature may be from 65° to 70° after the plants are well established.

To obtain compact handsome specimens, the young shoots must be pinched at every third leaf. Some of the varieties naturally form compact bushes, such are Col di Signora Blanca, Panachée, and Brown Turkey. Others, as Yellow Ischia, have more of a long-jointed upright habit; to improve the appearance of such sorts a few sticks may be inserted in the pot, and the shoots carefully trained to them, but avoid giving the plant an unnatural appearance by bending or twisting the shoots. I have obtained excellent fruit in the autumn from trees struck from eyes or cuttings the previous spring. The secret of success consists in repotting the plants when they require it, and at all times carefully attending to their wants. Well-managed plants may be thoroughly established in 12-inch pots in eight months from the time of putting in the cuttings. I have grown such plants in the Pine house without the aid of any bottom heat, except that obtained from the plants being placed on a stage with the hot-water pipes fixed underneath. It is, I think, a considerable advantage to have the pots standing over hot-water pipes. If there is no stage to place them upon, two bricks placed underneath the pots will raise them sufficiently above the pipes.

I shift the trees once a-year in autumn. The Fig endures its roots being reduced better than any other fruit tree. When the trees have been potted into the largest-sized pot, reduce the ball of earth sufficiently to allow of 1 inch or 1½ inch of compost being placed all round the sides. This will not prevent the tree from bearing freely the following season. I prefer repotting to top-dressing, as I find the trees do not succeed so well when only the surface soil is removed; the difficulty then is to know what is the state of the roots as regards moisture.

If it is intended to force the trees very early, say about the 1st of January, much care is requisite to prevent the first crop of fruit from dropping off. They should be started with a night temperature of 45°; this should be gradually increased after the buds show signs of bursting their encasements. The trees should be syringed night and morning, the roots kept in a healthy, moist medium, and the desired result will be obtained.

It may, perhaps, be well to add a short list of the best sorts. The Brown Turkey is one of the best known, and is also an excellent sort. Grizzly Bourjassotte is very free-bearing and richly-flavoured, but the fruit is not so large as the Brown Turkey. Singleton Perpetual, or White Ischia, is excellent for pot-culture; the fruit is small, but produced in great abundance. White Marseilles does not bear freely with me, but the fruit is large, and unsurpassed in flavour; it is a good variety to force. Col di Signora Blanca and the Striped variety should be included in the most select collection. Brunswick and Castle Kennedy have large handsome fruit, but are better adapted for planting-out than for pot-culture.—J. Douglas.

SUCCESSIONS OF VEGETABLES.—No. 8.

CELERY.

Sandringham Dwarf White.—Stout-growing, solid, crisp, and of a fine nutty flavour. A most excellent sort.

Incomparable Dwarf White.—Stout-growing, and dwarfer than the Sandringham, solid, crisp, and of a fine nutty flavour. This is the best white Celery for late spring use, keeping in excellent condition until the middle or end of April.

Seeley's Leviathan White.—Large, and of excellent flavour. It will suit those who grow for market or exhibition.

Seymour's Superb Solid White.—Large, solid, and of excellent flavour. Good for early crops.

Ivery's Nonsuch Pink.—Large, solid, and of fine nutty flavour. One of the best, if not the best, of the red Celeries for autumn and winter use.

Williams's Matchless Red.—A stout-growing, solid, crisp, fine, juicy sort, of excellent flavour. It is the best of all the red Celeries for late spring use, as it stands well until the close of April.

Hood's Imperial Dwarf Red.—Stout-growing, solid, crisp, and of a sweet nutty flavour. Very good.

Cole's Defiance Red.—Stout-growing, solid, and of a crisp nutty flavour.

Above we have eight sorts which will be sufficient for general purposes. There are, no doubt, others as good or better, but I have grown, I think, all the kinds of Celery except two, which I have provided myself with this year. I grow all the sorts named, sowing a panful of each. This is sufficient for our requirements of three to four thousand plants. A quarter of an ounce of each is thrice as much seed as is necessary for a garden of two acres. Four kinds are—Sandringham Dwarf White, Incomparable Dwarf White, Ivery's Nonsuch Pink, and Williams's Matchless Red; and two, Saudringham Dwarf White and Williams's Matchless Red.

The sowings should be three in number. The first, consisting of Sandringham Dwarf White, Seymour's Superb Solid White, Ivery's Nonsuch, and Cole's Defiance, should be made in the third week of February. This is done in well-drained pans filled with rich light soil, which are afterwards placed in a gentle hotbed of from 60° to 65°, where the soil must be kept moist, and the pans raised as the plants begin to make their appearance, in order to bring them to about 3 inches from the glass. When the plants have one rough leaf, and the second about half an inch long, there should be a hotbed ready for their reception, the bottom heat of which should range between 65° and 75°, and be covered with 3 or 4 inches of rich light soil, wherein the plants ought to be placed up to the seed leaves, at a distance of 2 inches apart every way. So disposed, a two-light frame measuring 6 feet square will hold more than 1200 plants. They should be gently watered, and in bright weather shaded until they have become established, after which plenty of air and a temperature of 50° to 55° may be given them.

By the beginning of May, when the plants are beginning to look crowded and the bed has grown cold, the lights may be withdrawn and used only in cold and frosty intervals; or if they are required for some other purpose, entirely removed, and the Celery protected by means of mats placed on hoops or sticks bent semicircularly over the bed. The water, with which they should be plentifully supplied, ought to be warm, or else it is apt, by causing a great check, to render their "bolting" before they are fit for anything but flavouring soup extremely probable.

For a very early crop take out trenches in a warm border 15 inches wide and 2 feet deep, at distances of 1 yard between each, fill these with a foot of solidly-trodden short dung, cover this with 6 inches of soil enriched with well-decayed manure, and over all lay a 3-inch layer of leaf soil. Transfer the plants to the centre of these beds, placing them half a foot apart, water them gently, and protect them with a double covering of tiffany upon hoops. The beds should be prepared about four days before, in order that the soil may become slightly warm. The plants may be put out in the second week of May, and the tiffany removed towards the end of the same month.

Those which were left behind when the first lot were pricked out, should be planted into trenches at the close of May or early in June. These ought to be 15 inches wide, 18 inches deep, and 3 feet 6 inches apart, filled with 6 inches of decayed manure well mixed with the same depth of soil below, and the plants placed in them with the balls entire, being afterwards carefully watered. When these have attained the height of 9 inches go over them and remove, by slipping off close downwards with the thumb, all offsets at the base of the first leaves, thus causing the sap to become more concentrated. Afterwards heap-up a little soil around each plant, and give the whole a thorough watering with liquid manure—1 lb. of guano to twenty gallons of water—then and twice during every week following. It is better to draw the leaves together by means of a little matting, as the outer ones if not so treated droop.

At the beginning of July both these crops will be strong, especially the first, and then earthing-up may be done, the soil for this purpose being taken from the sides of the trench so as to form channels along which water may be sent. About the middle of the month the plants will be fit for gathering, and will continue so until the end of August or a little longer. In very hot weather they should be watered overhead morning and evening.

For a main crop sow about the 7th of March much in the same way as before, begin to harden the plants off when showing their second rough leaves, and a fortnight after this let them be transplanted. The beds for this purpose should be 4 feet wide, and situated in a warm open spot. In making them, 6 inches of soil should be taken out, and hot dung to the depth of 1 foot substituted for it. This is overlaid with soil consisting half of loam and half of leaf soil and dung, well mixed, and the whole worked into a fine tilth. Tread this firm and rake it very fine, and after allowing a few hours to elapse put in the plants 3 inches apart every way. Water gently, and shade with mats until they are established, when the shading may be discontinued.

As soon as the plants are above 4 inches high plant them out. The trenches for this purpose should be made 4 feet apart upon ground that has been previously well manured and trenched, they should be 18 inches broad and of the same depth (unless the soil is unfavourable), and filled with half a foot of manure well mixed with a portion of the soil beneath. Into this last the plants, after having had the offsets all removed, must be placed with their balls entire, and 8 inches from one another. They will be ready to be planted out about the middle of June; and after this is done and they are established, let them be frequently watered with pure water, and once a-week with liquid manure.

When the plants have reached a height of about a foot the leaves should be tied and the stems earthed-up to about the extent of 6 inches. In this latter respect a moderate course should be adopted, not earthing too much for fear of making the stems grow crooked, nor too little to allow of the possibility of their being broken by the wind. The final earthing should be made about three weeks before the time they will be required for use, heaping the soil firmly around them, but taking care that none of it reach the centres of the plants. The earthing should be well advanced in the early part of October, and will only require a finishing touch in November.

The raising and treatment of those plants intended to form the last crop are much the same in the case of those grown for the first. The beds into which they are transplanted should be rich and light, and they may be removed into trenches on a light, well-sheltered spot about the middle of July, being there well watered. If the soil is not well drained and friable, they can scarcely be expected to keep sound during the winter. They must be well earthed-up during October, November, and even December, and should severe weather set in covered over with litter, which may be removed in mild weather. Where the soil is not in a fit state to earth-up the plants, ashes or sawdust may be used. Soot dusted over the plants when wet with dew, and continually applied from July to October, will be found effective in keeping off the Celery fly.—G. Abbey.

Sale of Stove and Greenhouse Plants.—The fine collection of specimen plants belonging to P. L. Hinds, Esq., of Byfleet Lodge, Weybridge, many of which have figured successfully at the metropolitan shows in past years, came under the

hammer at Stevens' Rooms, King Street, Covent Garden, on the 15th inst. The total amount realised at the sale was £570. Clerodendron Balfouri, 2 feet 6 inches high, and as much in diameter brought £4; Crotons, 4 feet by 3½ feet, £5 to £6; specimens of Dracæna ferrea variegata, £4 4s. to £4 15s.; Maranta roseo-picta and Veitchii, £4 and £5; Cocoa Palms, 8, 11, and 13 feet high, £5 5s., £6 15s., and £7 10s. respectively; Erica Cavendishii, 3 feet by 3 feet, £7 15s.; E. ventricosa magnifica, £8. *Exotic Ferns, &c.*—Dicksonia antarctica, with an 18-inch stem, twelve fronds, £3 10s.; Ditto, 1-foot stem, fourteen fronds, £3 10s.; Adiantum farleyense, £11 11s.; a magnificent plant of Platycerium grande, £12 12s. *Greenhouse Specimens.*—Phænocoma prolifera Barnesii, £8 8s.; Chorozema cordatum splendens, £5 5s. *British Ferns.*—A magnificent plant of Trichomanes radicans, £5 5s. *Azaleas*, 3 to 4 feet high, £3 10s. to £5 10s. each.

PYRUS SPECTABILIS RIVERSII.

This is Pyrus spectabilis roseo-plena of the "Florist and Pomologist," No. 50. It must be thirty or nearly forty years since (always admiring an old tree of Pyrus spectabilis planted by my father towards the end of the last century) the idea occurred to me how much more beautiful it would be if the fine scarlet of Pyrus japonica could be added to its flowers. Accordingly I attempted to impregnate its flowers with the pollen of this species. Many seedlings were raised, but I could not satisfy myself, from the habit of the seedlings, that any change had taken place. In the course of time they gave their flowers, some single, some double, but all but one too much like the parent. This gave darker flowers and a more robust growth, but with my fastidious taste it was not distinct enough to make it a lion. I was a little disappointed at my failure in crossing, still the tree seemed distinct, and I named it Pyrus spectabilis Riversii. The trees were sold at a very moderate price to the trade, 3s. 6d. or 5s. each, and its name now probably exists in the lists of country nurserymen. A dealer of the name of Saunders, then living at Abergavenny, used to order largely from here, and, doubtless, the tree being new, was sent to him, and thus its Abergavenny habitat. The parent tree is still here, and answers in every respect the figure and description given in the "Florist and Pomologist." It blossoms a few days after the species, and is really very showy and beautiful. Whether it ought to bear a new name without any authority is a question to be answered. I merely recognise it as a very old friend with a new name. I may mention that I saw the figure on the 6th inst. for the first time, or I should have sent this correction to the work in which it is so well figured.—Thos. Rivers.

ACACIAS AND LILACS.

The new varieties of the plants "Cornubia" inquires about are far too little known, and amateurs should endeavour always either to select for themselves, or ask to have sent them the best varieties of any particular genus they may be about to plant, for it must be remembered that a fine variety costs no more trouble in the cultivation than a bad one. True, the first outlay may be a trifle more for the best form, but this is repaid tenfold by superior excellence.

The following names I have selected from the catalogue of M. A. Van Geert, of Ghent, as being well deserving the attention of all who wish to adorn their lawns and shrubberies with the best and most choice forms of hardy flowering trees.

LILACS.

Syringa vulgaris Béranger.—Of free growth, producing enormous pyramidal trusses of large purplish lilac flowers, the under side rich deep violet.

S. vulgaris Charles X.—This is a strong and rapid-growing variety which was exhibited at Kensington in February last. The trusses are large, and the flowers reddish purple.

S. vulgaris Gloire de Moulins.—The trusses and flowers are very large and deep rosy lilac in colour, the buds being considerably brighter than the expanded blooms. By those who know the varieties best, this is considered the gem.

S. vulgaris Lovaniensis.—A close, compact, somewhat slender form. Flowers in a young state delicate rose, changing to a white slightly tinged with pale rose.

S. vulgaris alba.—A form with very large trusses of the purest white flowers.

S. vulgaris aureo-variegata.—This is the common form, with rich golden variegated leaves.

HARDY ACACIAS, OR LOCUST TREES.

Robinia inermis, the Parasol Acacia.—The shoots are quite thornless, and it makes a remarkably pretty tree, especially when worked as a standard. The heads are very dense and regular, the flowers white.

R. inermis variegata.—Similar in all respects, save one, to the preceding, and that is the leaves, which in this variety are beautifully variegated.

R. hispida rosea.—A most distinct and beautiful species from North America. The young shoots are very robust and thickly clothed with woolly hairs, whilst the foliage is very large and distinct. The great feature, however, lies in the fact that its large rose-coloured flowers are produced throughout the summer. It may be planted as a dwarf shrub or grafted upon stems as standards, and in each case the peculiar beauties will be developed; but it must not be planted in exposed situations, because the wood is extremely brittle and liable to be broken down with high winds.

R. Pseud-Acacia aurea.—In addition to the yellow flowers the foliage is variegated in a very striking manner with golden yellow.

R. Pseud-Acacia Bessoniana.—This variety is a very strong grower, yet it is compact. The shoots are thornless, the flowers white, the leaves deep green and very ornamental.

R. Pseud-Acacia Decaisneana.—A most profuse bloomer, producing large clusters of delicate soft pink flowers.

R. Pseud-Acacia Goundouini.—This may be distinguished by its stiff erect growth and dwarf habit.

R. Pseud-Acacia monophylla.—This is an exceedingly fine kind with large foliage, the compound leaf often growing into one, a peculiarity which has given rise to its name. The flowers are much larger and of a purer white than in the species.

R. Pseud-Acacia monophylla pendula.—This is like monophylla in every respect, except that it is drooping in its habit of growth.—Experto Crede.

CAPSICUM CULTURE.

Capsicums are tender annuals, or shrubs, and to afford good results they require a stove temperature throughout their growth. Although it is stated in catalogues and gardening works that, after being hardened-off in a cool greenhouse, they may either be potted and kept there, or planted-out in a warm sheltered border of rich soil, I have found them as tender as a Cockscomb, producing out of doors only green pods of a size suitable for pickling.

Sow the seeds early in March in light fibrous loam, with a third part of leaf mould, covering them about a quarter of an inch in depth with fine soil. Place them in a hotbed with a temperature of from 70° to 75°, keep the soil moist, and transplant when the rough leaves have made their appearance. Two plants should be put into each 3-inch pot, and these returned afterwards either to the old hotbed, or a new one with a temperature equal to that which the old bed originally possessed. Here they should be kept moist and shaded from the bright sun at mid-day until they have recovered from the potting. When the roots begin to fill the pots take out each pair of plants, part them, place them separately into 4½-inch pots, and then return them to the hotbed, shading as before. Keep them near the glass, and whenever the soil becomes dry give water so copiously that it runs right through the pot. Air should be admitted during mild weather, or when the heat of the hotbed rises above 75°.

By June they will have filled the pots, and must be transplanted, the larger sorts into 8-inch, the smaller into 7-inch pots. Two parts fibrous loam, one part old hotbed manure, and plenty of half-inch bones, the whole chopped-up small, will grow them well. The plants should be placed on shelves, and have a temperature of from 60° to 65° at night, 70° to 75° by day during dull weather, and from 80° to 90° in bright weather. The smaller kinds should be unshaded about 2 feet from the glass, the smaller ones 2 feet 6 inches, and all near the points at which air is admitted. They may succeed Dwarf Kidney Beans, flowering plants in the forcing pit, or even a crop of early Melons or winter-grown Cucumbers. Even a pit which has been used for wintering bedding plants, if heated to 60°, will do to grow them in. When the pods have set water alternately with liquid manure, half an ounce to the gallon of water, and take great care that the leaves do not flag. They will flower at the beginning of July, and have their fruit ripened from September to October. Cayenne pepper is the ripe ground pods of the Capsicum.

Those intended for pickling green should be grown much in the same way as the preceding until the end of May. Then they should be thoroughly hardened-off, and about the middle of June planted in rich light soil, 1 foot to 3 feet from a south wall, and from 18 inches to 2 feet from each other,

according as their size requires. They will flower at the end of July, and in about five weeks afterwards the pods will be ready for pickling. The plants will bear until frost sets in, which will nip them.

The principal kinds are:—Cayenne, small red pods; Chili, small red pods, but longer and larger than Cayenne, and very prolific; Long Red and Long Yellow differ only in the colour of the pods, which have three or four times the substance of Chilies; Cherry-shaped Red and Yellow; Squash or Tomato-shaped, both red and yellow; and Monstrosum, or The Monster, and truly it is so compared with others. The new Capsicum, Prince of Wales, I have not seen.—G. Abbey.

ROYAL HORTICULTURAL SOCIETY.

March 20th.

This was the first Spring Show, well it was supported, and well worthy it was of inspection by all interested in those beautiful flowers which adorn our conservatories and windows at the present season. These are even more welcome in smoky London than in the country, by the contrast which their bright colours offer in comparison with the gloom which usually reigns around. The Hyacinths, as they generally are at the Society's Show, were superb; there were, perhaps, fewer of those extraordinary spikes which have been seen in some seasons, but the quality was remarkably good throughout, while in some of the collections, as those of Messrs. Veitch and Mr. William Paul, there were numbers equal to anything seen in past years. In the amateurs' classes there was a considerable improvement. Mr. Douglas and the Rev. H. H. Dombrain stood far to the front, showing much better examples than were produced in times gone by.

In the nurserymen's Class 1, eighteen Hyacinths, Messrs. Veitch, who were the only exhibitors, took the first prize with splendid spikes of Von Schiller, Cavaignac, Vuurbaak, Solfaterre, Lady Palmerston, rose striped with pink; Macaulay, Koh-i-Noor, Haydn, Charles Dickens, De Candolle, Lord Byron, Bloksberg, Ida, La Grandesse, Grandeur à Merveille, together with Blondin, Blanche Formidable, and De Candolle.

In the next class, for twelve, Mr. Douglas, gardener to F. Whitbourn, Esq., took the first honours with very fine examples of Von Schiller, Lord Wellington, Garrick, Fabiola, Alba maxima, Charles Dickens, L'Innocence, Van Speyk, remarkably fine, and others almost equally good. Mr. Weir, gardener to Mrs. Hodgson, Hampstead, came second, and Mr. Stephenson, Tredegar Place, Bow, third.

In Class 3, for six, Miss Wilding, Chesterfield Street, Enston Road, was first with excellent spikes of Marie, Mont Blanc, and others. The Rev. H. H. Dombrain, Westwell Vicarage, was a good second, and Mr. George, gardener to Miss Nicholson, Putney Heath, third.

Class 4 was for amateurs who had not before taken a prize for Hyacinths from the Society. In this Mr. Dombrain was again first with excellent spikes of Gigantea, Baron Von Tuyll, Lord Raglan, Macaulay, splendid in colour and beautifully grown, Mont Blanc, and Raphael. Mr. George was second, and Mr. Rowe, gardener to Mrs. Lewis, Roehampton third.

Of six new Hyacinths never before exhibited Messrs. Veitch had the only group, and took the first prize. Excelsior, single, reddish cream with a pale rose stripe in the centre of each segment, was very distinct in colour, had a fine spike, and promises to be an acquisition. Tricolor, with large porcelain bells, is likely to be good. The others were Mrs. Radcliffe, with large double bells, white, tinged with pale blue, and pale blue on the tube; Lady Mayo, single red; Chapeau d'Orange, reddish buff; and Lila Major, single plum.

Tulips were not numerously shown. Messrs. Veitch were first in the nurserymen's class with Bride of Haarlem, Rose Luisante, Brutus, fine, Rose Miniature, Duc de Holstein, and Fabiola. Mr. Macintosh, Hammersmith, came second. In the amateurs' class the prizes went to Messrs. Rowe, Stephenson, and Weir.

Only one collection of Crocuses was shown; that came from Mr. Stephenson, and had a first prize.

Of Mignonette Messrs. Rollisson, of Tooting, exhibited fine bushes 2½ feet high and 2 feet in diameter at the base, also three well-grown plants of tree Mignonette, taking first prizes for each.

Of miscellaneous subjects Mr. W. Paul, of Waltham Cross, sent a splendid collection of upwards of a hundred pots, a fine collection of Camellias in small pots, and one of cut blooms of the same shrub. Messrs. Lane, of Great Berkhampstead, contributed a group of Camellias, Rhododendrons, Roses, Deutzias, and some other flowering shrubs; Messrs. Standish & Co., of Ascot, a group of Cinerarias, early-flowering Pelargoniums, Geraniums, and Bouvardias; Messrs. Cutbush, of Ascot, baskets of Cinerarias and Aucuba aureo-maculata, with the leaves largely marked with yellow; and Mr. Goddard, gardener to H. Little, Esq., Twickenham, a fine collection of Cyclamens.

Messrs. Veitch exhibited a magnificent collection of nearly three hundred Hyacinths with spikes of the largest size, beautifully flowered pot Roses, cut blooms of Roses, and grand groups of Tulips and Narcissus.

Mr. Denning, gardener to Lord Londesborough, Grimston Park, Tadcaster, sent a magnificent collection of Orchids, among which were Dendrobium luteo-purpureum, with two very fine spikes, Cypripedium hirsutiasimum, fine examples of Lycaste Skinneri, Angræcum sesquipedale, Dendrobium Devonianum, and Cattleyas. From Messrs. Rollisson, Tooting, came an attractive group of Orchids and other plants; and from Mr. Williams, Holloway, a magnificent specimen of Medinilla magnifica, together with Azaleas, Camellias, a fine Genethyllis Hookeri, Phalænopsis Schilleriana with a branching spike of large flowers, Trichopilia suavis, fine, and several other Orchids.

Mr. W. E. Dixon, nurseryman, Beverley, contributed several good specimens of Anthurium Scherzerianum, a large and very fine pan of Trichomanes radicans, Vandas, and Anæctochils; and Mr. Ware, of Tottenham, one of his beautiful and interesting groups of spring-flowering plants. Lastly, Mr. Turner, Royal Nurseries, Slough, sent show and alpine Auriculas, and a fine basket of Lady Blanche, white forcing Pink. Several prizes were awarded for the above subjects, and are recorded in our advertising columns.

Fruit Committee.—G. F. Wilson, Esq., F.R.S., in the chair. Mr. Ross, of Welford Park, Newbury, sent a dish of Chaumontel Pears finely coloured, but the flavour was deficient. Mr. Hudson, gardener to J. C. Imthurn, Esq., sent a large exhibition of Lady Downe's Grape, which received a cultural commendation. Mr. Kemp, gardener to the Duke of Northumberland, Albury Park, Guildford, sent a bunch of Lady Downe's Grape, preserved in water in his registered Grape rail and stand. The Grapes were very fresh, but watery and deficient in flavour. The rack was commended, and the Committee made a recommendation that the vessels in which the Grapes are put should be of glass instead of zinc. Mr. Record, gardener to the Marquis of Salisbury, Hatfield, sent fruit of a seedling Cucumber called "Winter Supply." It is a cross between Telegraph and Stanley's Prolific, and is very prolific. Messrs. Rollisson & Son, of Tooting, sent specimens of roots of Dioscorea sativa, the West Indian Yam. Mr. Denning, gardener to Lord Londesborough, Grimston Park, sent specimens of a good variety of Scotch Kale and Coleworts.

Prizes were offered for the best three dishes of early Grapes, but there was no competition. Prizes were likewise offered for the best three dishes of Dessert Apples, also for the best three dishes of Kitchen Apples. For Dessert Apples Mr. Ross, gardener to C. Eyre, Esq., Welford Park, Newbury, was first with a sort called White Nonpareil, Claygate Pearmain, and Cornish Aromatic, all in fine condition. The second prize went to Mr. Lynu, gardener to Lord Boston, Hedsor, for Cox's Orange Pippin, Cockle Pippin, and Scarlet Nonpareil, also very good; the third to Mr. Parsons, gardener to R. Attenborough, Esq., Acton Green. For Kitchen Apples Mr. Ross was again first with Lewis's Incomparable, Striped Beefing, and Northern Greening, very high coloured. Mr. Miles, gardener to Lord Carrington, Wycombe Abbey, was second with Dumelow's Seedling, Kentish Fillbasket, and Alfriston, also fine; and Mr. Parsons third. Mr. Smith, gardener to the Earl of Gainsborough, Exton Park, exhibited Dumelow's Seedling and Blenheim Pippin very good. The only exhibitor of three heads of Broccoli was Mr. Ross, who had a first prize for Snow's Winter White, very good indeed.

Floral Committee.—W. Marshall, Esq., in the chair. Messrs. Veitch sent Masdevallia Harryana, which has been before exhibited under the name of M. amabilis, and since re-named. The beautiful magenta flowers, we anticipate, will yet be produced larger and more freely, but even if only two in number, as on the plant exhibited, the plant will be worthy of its name and its namesake—Mr. Harry Veitch. From the same firm came a fine Odontoglossum named Andersonianum, having cream-coloured and brown flowers. This received a first-class certificate. Mr. Bruce Findlay, of the Botanic Gardens, Manchester, sent a fine variety of Odontoglossum Pescatorei. Mr. B. S. Williams, Holloway, had a first-class certificate for Agave gemminata Williamsii with narrow filiferous leaves. From Mr. Wilson, gardener to W. Marshall, Esq., came Odontoglossum membranaceum and O. Cervantesii roseum, which, although the plants were very small, were finely bloomed.

Mr. J. Douglas, Loxford Hall Gardens, exhibited two new Hyacinths, of which Yescho was the more promising, having violet plum bells, white throat, and a close spike. From some of the segments exhibiting breaks of rose we infer it is cross-bred. The other was Sylvia, bluish lilac, good, but in colour much like some existing varieties. Mr. Wiggins, gardener to W. Beck, Esq., Isleworth, had a cultural commendation for a collection of Cyclamens, including the white variety fimbriatum, certificated at Regent's Park last week.

Mr. William Paul sent a group of new Hyacinths, of which the most noticeable were L'Ornement de Rosa, Reine de Naples, which were both noticed last week, and J. H. Veen, a good pale blue. Mr. Dixon, Beverley Nursery, had a cultural commenda-

tion for a group of new plants; Mr. Jaques, gardener to P. Cunliffe, Esq., Hooley House, Coulsdon, a first-class certificate for Odontoglossum Alexandræ roseum, with flowers as large as in the ordinary form, but rosy lilac, yellow, and brown. Mr. Denning, gardener to Lord Londesborough, exhibited seedling plants of Dendrobium Devonianum, three years old, and in flower, and Mr. Chambers, gardener to J. Laurance, Esq., Beddington, had a cultural commendation for a plant of Beaumontia grandiflora, bearing a number of its large, wax-like, pure white bells.

Seedling Polyanthuses came from Mr. Reid, Twickenham, and Mr. Watson, Fulwell; Mr. Barr, Covent Garden, sent a large collection of cut flowers of Narcissus which excited considerable interest; and Mr. Green, gardener to W. Wilson Saunders, Esq., Reigate, several interesting plants.

MESSRS. CUTBUSH'S SPRING SHOW.

For the last three or four years Messrs. Cutbush have held their show of spring-flowering plants at the Crystal Palace; this year they have returned to their old home at Highgate, where the accommodation had been too small, but now it has been increased. A new conservatory, 50 feet long by 26 wide, has been erected, specially with the view of forming a show house, and for that purpose it is admirably suited. The house where in former years the annual show was held has been remodelled to accord with the new one, to which it forms a useful and ornamental adjunct.

The fame of Messrs. Cutbush in connection with Hyacinths, Tulips, and other bulbous plants, has been too long established to render it necessary to say that the exhibition opened on Saturday last is otherwise than good. It well maintains their credit—that is enough. We are not going to weary our readers with a long enumeration of varieties that are good—a tolerably accurate index to these will be found in the reports of the public shows, but we will just name a few. *Double Blue*: Garrick, Van Speyk, Laurens Koster. *Double Red*: Duke of Wellington. *Single Red*: Cavaignac, Florence Nightingale, Macaulay, Ornement de la Nature, Princess Charlotte, Solfaterre, Von Schiller. *Mauve*: Haydn. *Single White*: Mont Blanc, Grandeur à Merveille, Snowball, Queen of the Netherlands, Gigantea. *Single Blue*: Argus, Grand Lilas, Charles Dickens, Baron Von Tuyll, Lord Palmerston, Marie, and Leonidas. *Single Black*: General Havelock and Prince Albert.

Among the new kinds the best appeared to be Charles Dickens, single pale rose, with a rosy pink stripe down the centre of each segment; George Peabody, deep crimson; Lord Melville, dark purple, with a white eye, fine bells; and La Franchise, with large pure white bells. Some of these have already appeared at exhibitions.

The Tulip, Narcissus, and Crocus are also well represented in numerous varieties, and Camellias, Azaleas, Rhododendrons, Prunus triloba, and other plants are effectively arranged in the centre of the house, as well as at the ends. It is an exhibition highly to be commended, and the only regret is that it will close on the 30th of this month.

VISIT OF THE ROYAL HORTICULTURAL SOCIETY TO BIRMINGHAM.

A MEETING of the Local Committee was held at the Great Western Hotel on Thursday. The chair was taken by the Marquis of HERTFORD. The minutes of the last meeting of the Committee, held on the 25th January, were read and confirmed.

The HON. SECRETARY (Mr. E. W. Badger), read the following letter:—

"Royal Horticulturall Society,
"South Kensington, W., 13th March, 1872.

"DEAR SIR,—I have the pleasure to inform you that His Royal Highness Prince Arthur has signified his intention of opening our Show, at the Lower Grounds, Aston, Birmingham, on Tuesday, June 25th next.—I am, &c., JAMES RICHARDS, Assistant Secretary."

The HON. SECRETARY then reported the acceptance of the office of Vice-President of the Committee by the Mayor of Birmingham, and moved the addition of several gentlemen to the Committee, including Mr. Bromley-Davenport, M.P.

The motion was carried unanimously.

Mr. BADGER then read a report of the business transacted by the various sub-committees, except that appointed to arrange for the exhibition of horticultural buildings, implements, &c. He stated that the subscriptions to the special prize fund then amounted to £723 19s., and urged members of the Committee to obtain further subscriptions from their friends, as, if a less sum than £1000 were raised, the scheme of the Special Prize List Committee would be incomplete. That Committee, he said, met last Friday, and agreed to the very comprehensive, and, as far as it went, satisfactory schedule of prizes.

The report was ordered to be entered on the minutes.

Mr. B. A. HALLAM, Honorary Secretary for horticultural implements, &c., read a report from the sub-committee of that department recommending that the sum of £100, placed at their disposal for prizes, should be appropriated to the award of medals as under:—Five gold medals, one to be given for the best horticultural building; one for the best heating apparatus; one for the best collection of vases or other garden decorations; one for the best collection of garden machinery, tools, &c.; and one for the best collection of garden wirework. They further recommended that the Judges should be empowered to award silver and bronze medals, not only to any meritorious exhibits in the classes just enumerated which may not obtain gold medals, but also to any others besides those which might appear to them to deserve such a distinction. They were of opinion that the funds at their disposal would enable them to offer five gold medals, thirty silver medals, and forty bronze medals. Mr. Hallam also reported that Mr. Joseph Moore had been commissioned to prepare designs for the medals.

The report was adopted.

Mr. QUILTER handed in a copy of his arrangement with the Council of the Royal Horticultural Society, which was referred to the Finance and General Purposes Committee.

A resolution was then passed appointing the Rev. E. H. Kittoe, Messrs. Wright, Marshall, Vertegans, and Badger, a sub-committee, with full authority to revise, amend, curtail, or extend the special prize list as circumstances may require. They were also empowered to issue the prize list when ready, and to prepare and issue a second edition should it be found desirable to do so.

Colonel RATCLIFF then moved:—"That, subject to the foregoing resolution, the schedules of prizes, as prepared by the sub-committee, be approved of."

Mr. BADGER seconded the resolution, and it was adopted.

PLANTING SMALL GROUNDS WITH ORNAMENTAL TREES AND SHRUBS.—No. 1.

(An Address before the Rural Club of New York. By Josiah Hoopes.)

CAN there be a more rational, a more healthful, or a more pleasant employment for us all during our leisure moments than the cultivation of trees and flowers? Alike, the labourer and the millionaire may enjoy this bountiful blessing. From the simple grass plot with its solitary tree fronting the Vine-covered cottage, the costly park surrounding the mansion of the rich, up through a regular gradation, all can be made to yield abundant food for enjoyment. To the latter class, however, I cannot in my remarks offer much advice; but to those whose taste for horticulture is sufficient to induce a personal superintendence of their own door-yards, I feel that my mission is to them. To all such, upon every occasion, I invariably commence with a stereotyped phrase, "Don't plant large trees in small yards."

One of the greatest of all errors, and one that is indulged in by so many of our planters in their horticultural infancy, is that of setting out a first-class tree in a second-class yard. Scarcely a town lot or a cemetery enclosure is laid out but this mistake is made, although ignorance in nearly every instance is the excuse, and justly so too. Taking, for instance, the labourer's cottage, with its few square feet of grass in front—and, by the way, what is more attractive than a well-kept sod?—in the place of a Norway Spruce or Austrian Pine, I would suggest what is termed a dwarf evergreen—one of the smaller forms of Arbor-Vitæ, now becoming so popular, or a Juniper with its variety of outline, or perhaps a form of the newer genus Retinospora. If the front should have a northern aspect, the best plant for this purpose is either some handsomely variegated variety of Aucuba or Euonymus japonicus. The newer introductions of these are exceedingly attractive, and a group composed of distinct kinds forms an agreeable feature.

FLOWERS AND FLOWERING SHRUBS.—To those whose taste for flowers is predominant, I would recommend a circular bed of Roses, not planted promiscuously, but in lines or ribbons, each circle a distinct colour, all trimmed low, and consequently well branched. If the entire bed should be of one variety, the effect will also be very fine. For this purpose the China or Bengal class cannot be excelled. The ribbon style must be formed of prolific-blooming kinds. Another pretty adornment for this smallest class of door-yards is the introduction of a group of small-sized shrubs, such as white and rose-flowering Almonds, Deutzia gracilis, Spiræa callosa alba, purple Berberry, red and white Snowberry, &c., with a Kilmarnock Willow or dwarf Weeping Cherry in the centre. The shrubs must be annually pruned into a rounded form, thus inducing a close growth, and preventing a tall habit. Occasionally a solitary shrub of large size may be judiciously introduced into a plot of this character, as, for instance, a purple-flowering Magnolia; but in this case the specimen should be such as will

strike the eye as novel in colour, size, or peculiarity of bloom. I think the usual mixed flower-bed, frequently seen in such locations, is poor taste; and although I yield to no one in my love for this class of plants, I should manage to create a pretty bed on the side rather than at the front of the house. Here let it receive a graceful flowing outline, rather than the old-fashioned circle. In it the plants should always receive due care in their arrangement, with an eye to fitness and position as well as beauty. Above all things, shun the now fashionable misnomers termed vases. I allude, of course, to those little nondescript articles that are a burlesque on the name and an outrage on good taste. In many of our country towns I have seen almost every enclosure disgraced with these wash-basins perched up on posts, with often a sickly-looking plant leaning over the edge, as if ashamed to be seen in such questionable company; and not only one, but frequently several together, in imitation of a crockery establishment where the owner is desirous of displaying his wares. Now I do not wish to be understood as deprecating altogether this class of adornments, but in the name of good taste do let us exercise some discretion in the matter.

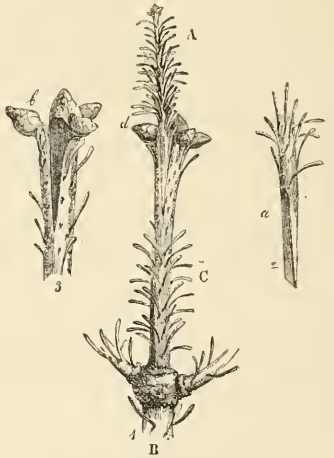
Climbers.—One of the greatest improvements to a small cottage, is the prevalence of vines clambering over it, so as to almost entirely conceal its outline. For this purpose nothing can be better than the American Ivy (Ampelopsis), and Golden-veined Honeysuckle (Lonicera aureo-reticulata), closely intertwined, so that during the autumn months the effect of the golden and crimson foliage is beautiful beyond description. Over the front of the house, especially if there should be a porch, the effect will be heightened by a rampant-growing Clematis, either C. Vitalba, the European Travellers' Joy, or C. virginiana, our native Virgin's Bower. The abundance of pure white fragrant bloom on each of these, aided by a dense mass of foliage, is productive of good results. The Prairie Roses, owing to their entire hardiness and free-flowering habits, are also worthy of due consideration as cottage runners; but there is an air of stiffness and primness about them which never harmonises so well with their surroundings as do the vines before mentioned. When the cottagers of America are willing to receive a lesson in floriculture from the Paisley weavers, we may then date an era of progression which is sadly needed throughout our land to-day. The few hours spent during the evening, or early in the morning, on a bed of choice flowers will return compound interest, in pleasure, on a capital invested in labour; and my reputation for veracity will never be questioned when I state that, when men are once induced to feel an interest in plants, it increases with their years, so that rarely is it ever forsaken.

Decoration of Lawns.—We now arrive at another and more ambitious style of garden—one rising to the position of a lawn. This class embraces the majority of small places, situated in the suburbs of our rural towns, and, to my eye, if planted properly, is unexcelled in quiet, yet attractive beauty. The winding walk, commencing, perhaps, at one corner of the grounds, gives one an opportunity of planting groups of choice shrubs at every turn. Among the newer kinds, of undoubted excellence for this purpose, none can surpass the Hydrangea paniculata grandiflora, with its enormous panicles of pure white flowers; the Viburnum plicatum, like the old-fashioned snow-ball, producing large globular heads of snow-white flowers; Weigela hortensis nivea, with its silver bells; the dwarf variety of Weigela rosea, with variegated foliage and pale rosy-pink flowers; Spiræa Thunbergi, with narrow linear leaves and minute white flowers; and then the Rhododendrons and Azaleas. The sooner we disabuse ourselves of the idea that special receipts are needed for preparing the soil for the last two kinds, the sooner these lovely plants will become popular. Nothing whatever is necessary before planting, excepting to merely pare off the grass thinly, and then pulverise the soil beneath. Decaying grass roots preserve the soil in a mellow state, and afford nourishment to the mass of small fibres common to all ericaceous plants. A mass of Rhododendrons is always attractive from the peculiar nature of their glossy green leaves, but, when in bloom, the blending of colours presented by the many hardy kinds, renders them pre-eminently the queen of flowering shrubs. The Ghent Azaleas, although deciduous, are, nevertheless, gorgeous in flower; their colours, of almost every hue, are dazzling in their brightness, especially the crimson, scarlet, and orange shades of colour. The pure white, and different shades of rose, are likewise especially charming. It is not necessary for me to give you a list of hardy shrubs to plant; that can be procured from any nurseryman's catalogue; but, before leaving this class of plants, I would merely mention the Pæonia Moutan, or Tree Pæony, as being especially adapted for clustering on a well-kept lawn.—(*American Horticulturist.*)

RESTORING THE LEADER OF A CONIFER.

Philip, my employer's son, planted on Christmas-day, 1865, a tree, a Silver Fir, Picea pectinata, and in a few days after left home and sailed in that ill-fated ship the London, which sank on the 12th of January, 1866, and in which he was drowned. His parents had a tablet placed at the foot of the tree inscribed, "Planted by Philip, Christmas-day, 1865." They had also a fence made around the tree, about 5 feet high and about 8 feet square, to protect it. The growth had been but stunted until last summer, when it made a nice start and a good strong leader. This afternoon my mistress called me to it to show that about 15 inches of the leader had been cleanly cut off. It had been done about three days. Although the tree of itself is not of great value, I have heard my master say he would not have it damaged for £500, so you can better imagine his feelings than I can write them. My object in writing is to ask advice how I am to manage it. The shoot is about 2 inches round where it is cut off, and about 5 inches below that are two side branches about 14 inches long. I was thinking if I could get one of these for a leader; and again I thought, Would a graft grow? If you think it will, tell me what form of grafting would be best, and the best time.—W. Nock, *Lutwyche Hall, Much Wenlock.*

[A side branch will not make a good leader. Purchase another Silver Fir with a leader of about the same size as that cut off, and graft it at once in the manner represented in the accompanying illustrations. *Fig.* 1 represents a grafted Fir,



in which A is the scion and c the terminal shoot of the tree to be grafted. *Fig.* 2, *a* is the scion, cut at its lower end in the form of a wedge. *Fig.* 3 is an enlarged figure of the terminal shoot c 1, in which a cleft is made between the crown buds at *b*. The scion *a* 2 is inserted in the cleft *b* 3, and when bound round by a cotton or bast ligature, and covered with clay or grafting-wax, the operation is complete. The whorl of branches situated immediately under the graft between B and c, *fig.* 1, should be shortened to half their length, or tied down in a curve if it is desirable to retain them, so as to throw more strength into the graft.]

GRAFTING.—No. 5.

Grafting by a Twig with a Shield.—Recourse is had to this process for propagating some plants, and especially the Variegated Negundo. The best season at which to perform this operation is in August and September, and it is done with

a dormant bud. Select as a scion a short twig (x, *fig.* 1). The adventitious twigs are best for the purpose. With a budding-knife take off the twig with a shield of bark to it (v), the same as is done in budding. On the stock (y), an incision (z), is made in the form of a T, not deeper than the thickness of

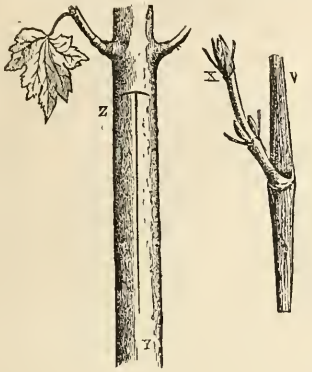


Fig. 1.

the bark; with the handle of the budding-knife raise the lips of the incision and slide in the scion by its shield (v). Bind with wool or bast, and it will not be necessary to cover it with any plaster.

In the restoration of fruit trees we use sometimes as scions twigs 18 inches long furnished with a shield of 4 inches. By removing the leaves eight days beforehand, when on the mother plant the scions are prepared for the separation, and by covering them with leaves of trees or mould as soon as they are grafted, drying-up is avoided.

In grafting with a dormant bud intended for propagation, especial care must be taken to head-down the stock after winter to 4 inches above the graft, and to tie the scion straight, so that there may be no curve at the point of union. The first process, that by a simple twig, when it is applied to the restoration of trees does not require the amputation of the stock; but to hasten the development of the graft, a notch is opened in the spring on the stock at about half an inch above it. The notch, which is about the twelfth of an inch wide, is made by two cuts of the knife, which sever and raise the bark. At the same time all the branches above the graft are pruned-in close.

A rod forming a support is indispensable to the training of a young graft. When grafting is done with an active bud at the rising of the sap, it is well to cover it with mould to protect it from the sun's action and drought. If, unfortunately, it starts growth at once and has a tendency to weakness, its growth is stimulated by making small longitudinal incisions down the bark.

Side Grafting in the Alburnum.—*General Principles.*—This method is chiefly used for evergreen shrubs, as well as for grafting under glass, from February till August. If the same subjects are grafted in the open air they must be done from April till August. A twig of medium size and with a terminal bud is the best for a scion of an evergreen shrub. It is to be cut from the tree at the time of grafting, only the lower leaves are to be removed; and to support vitality it is to be placed in the shade, the end in a vessel of water, or in damp sand. The stock in this case is not headed-down, but on the part of the stem where the scion is to be introduced the leaves are to be shortened or altogether removed. For the scion to penetrate to the alburnum a slit is made in the bark from above downwards diagonally in relation to the axis of the stock, but not so deep as to penetrate to the pith. The scion is cut wedge-shaped if it is to be inserted at the top of the slit, or angular if on the side of the incision. Of this there are two examples—

1, *Side Grafting with a Straight Slit.*—The scion (A, *fig.* 2), of a Camellia is cut half its length wedge-shaped, leaving on each side an equal breadth of bark diminishing gradually to a point. The stock (B), is slit at *b* by a single cut of the knife, the blade penetrating the alburnum. The scion (A), is introduced by its base *a*, then tied as represented at C. If this is done in the open air it must be covered with wax or clay, because the cut on each side of the slit leaves an opening.

Fig. 2.

With the Camellia and other hardwooded plants, the stock is preserved entire; but the Aucuba, the tissues of which are looser, is to be topped to 4 or 8 inches above the graft when the operation is performed.

2. *Side Grafting with an Oblique Slit.*—The scion (E, *fig.* 3),

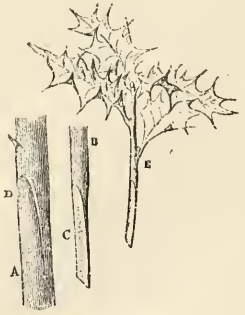


Fig. 3.

is the top of a twig of Holly. It is reproduced in part at D, with the wedge-shaped cut *c*. On the stock A, the slit D is made in the direction of the axis of the stock with the top rounded in the form of a sickle. The layers of inner bark and alburnum are cut obliquely. The scion is bound with an elastic ligature. A certain number of Conifers favour side-

grafting with an oblique slit, as the wound is not so large as with the straight slit, and a scion of small diameter fits better. —Baltet, *L'Art de Greffer.*

A SOJOURN IN THE HIGHLANDS OF SCOTLAND.

(*Continued from page* 192.)

Took the rail to Dunkeld, where we arrived about six o'clock, and then had a walk. In the morning we rose early in order to visit the long-famed Stenton Rocks, the habitat of the now very rare little Forked Fern (Asplenium septeutrionale). The rocks are given as near Dunkeld, but we found them four miles away. On reaching what we supposed would be the rocks we inquired of a man who was hedging the road-sides, Where the Stenton Rocks were? "There they are," said he. "Are ye come to look for the Stag-horn Fern?" "No, the Forked Fern, Asplenium septentrionale" "We call it the Stag-horn Fern," said he; "well, ye may go, but ye'll not find it." "But," said we, "it must be in plenty somewhere here, for we saw thirty or forty plants stuck in some rockwork near the tollgate." "Oh!" said he, "those belong to me and my boy." "What will be your price for the lot?" we asked. "I will not sell them," said he, "my boy will perhaps give you one." We found cunning Sandy wished to make more than the market price of his plants, so we left him. "I'm certain ye'll not find it," said Sandy, as we left him. "Then," we replied, "we will see where it has been." We explored the rocks carefully, found one or two plants, but had to mount each other's shoulders ladder-wise before they could be reached. We saw a few others, but too far up in the cliffs, which are high and quite perpendicular. We have, at all times, a great reluctance to rob habitats of rare plants, but these plants might just as well be taken away as left. The timber that formerly gave shade is being cut down, and as the rocks will now be exposed to the full blaze of the sun the little Forked Fern cannot possibly live.

We afterwards visited some rocks overhanging the Tay, which we were led to seek out in consequence of having received letters regarding a habitat of this Fern on rocks overlooking the Tay. These rocks are almost perpendicular, and a false step would have thrown us down their jagged edges into the Tay, which here flows close to the rocks fathoms deep. At imminent peril we succeeded in getting about a dozen more plants of this rare Fern.

We found the hill (on the face of which are the Stenton Rocks) had been a Roman encampment, with three lines of circumvallation. Near the Stenton Rocks we gathered a fine form of Polystichum aculeatum, new to us, a good name for which will be P. aculeatum protrusum. We almost regret to say that we left some large plants of this fine Fern, only bringing away two of it.

We got back to Dunkeld about one o'clock, and by the side of the Tay we saw some fine timber. We measured an Oak and a Sycamore close together; at 4 feet from the ground the former was 21, and the latter 20 feet in circumference. These were a noble pair, symmetrical, healthy, and vigorous. Ascended Birnam Hill, made famous as one of the scenes in Macbeth; we found in the Birnam Wood plenty of that interesting little plant Trientalis europæa, with which we were much pleased. The dusky grey of evening came on before we reached the top of Birnam Hill, and we returned to our lodgings, where Donaldson, a nurseryman, market gardener, and botanical collector, visited us. We found him an agreeable and interesting old man, and after giving him half a dozen plants of Polystichum Lonchitis, he offered to send us at any time plants of the Asplenium septentrionale, but we should like to know where he will now find it in any quantity.

Next morning we went to Perth by an early train to see our esteemed friend Mr. John Sim, and, after a long chat with him on botanical and other subjects he took us into his garden by the Tay, and gave us a few of his rare plants, such as Aromonia agremonoides, Lychnis Viscaria, and Rosa alpina.—(*Extracted from Mr. Stansfield's notes read before the Todmorden Botanical Society.*)

EXPLANATION NEEDED.

In the Journal of the 18th of January last appeared an advertisement from "Amateur," 14, Hadley Street, Prince of Wales Road, Kentish Town, London, offering Geraniums, &c., for sale. On January 25th I forwarded to "Amateur" 3*s.* 8*d.* in stamps for plants which I then requested to be sent to me, but as they did not arrive I again wrote to "Amateur" on January 31st, but have never received the plants nor any reply to my letters; nor have the latter been returned to me through the Dead Letter Office. As the advertisement at once disappeared I concluded I had been swindled. Much to my surprise, I find from your Journal of the 7th inst. that "Amateur" is again advertising Geraniums, &c., for sale from the same address.—W. Cross, *East Acridge, Barton-on-Humber.*

A PLEA FOR HOUSE PLANTS.

I beg to call attention to the following facts, culled from an article on the subject which I recently came across:—The opinion frequently expressed concerning the injurious effect of house plants is by no means a new one, nor is it confined to the young. It exists in "older heads," and will prevail, it is to be feared, until the sciences of botany and chemistry are studied in our common schools and by our firesides. From them we may learn many facts, established by experiment, proving that, so far from being injurious, plants are the great promoters of health and supporters of animal life, not merely in furnishing food, but also the breath of life. These sciences abound in interesting facts and experiments, showing how inorganic substances, such as air, water, and some minerals, are transformed into the various vegetable substances used by animals to sustain life and promote growth, and how, in return, animals furnish plants the necessary elements of life and growth. When wood is charred in a pit, a black mass is the result. This is carbon, the solidifying principle of all substances possessing life. When this carbon or charcoal is burned, heat is produced by its union with oxygen. Carbon also exists in the blood of animals, and serves the purpose of producing animal heat by union with oxygen in breathing. The result of this union is carbonic acid gas, the impure air thrown from the lungs. This cannot be again taken into the lungs, as expelled, without producing death. But the revelations of chemistry teach us that this carbonic acid gas is exactly fitted for the use of plants, and even indispensable to their life and growth. Being absorbed by them through the numberless pores on their surfaces, it is decomposed, the carbon going to form the vegetable structure and increase its growth and solidity, while the oxygen, the only life-sustaining principle of the atmosphere for animals, is thrown off, to be again inhaled by the lungs, there again to receive carbon and return, thus passing to and fro, carrying the elements of life from one to the other constantly. The same poisonous gas arises from decaying vegetation; and with another called ammonia, from decaying animal substances. These cause the unhealthfulness of cities where vegetation does not abound. It is the office of the green parts of vegetables to absorb and decompose these gases and water. Hence the immense amount of green surface spread out to catch the aërial aliment. Wherever a green plant exists, whether it be those which man cultivates as sources of food, or the venerable forest trees, or the wild weeds of the hedgerows, or the humble grass by the wayside, or the seaweeds which grow in the ocean, or the exotic in the parlour;—this is its essential function—that in which vegetable life consists, to absorb carbonic acid gas, decompose it, use the carbon in forming organic vegetable compounds, and restore the oxygen to the air. From these facts we may safely infer that the cultivation of house plants under favourable circumstances, so far from being injurious, is beneficial to health. Those which present the most extended leaf-surfaces are the most useful.

There is also another way in which house plants benefit health—viz., by promoting cheerfulness. Now is the time to secure these sources of joy for the coming season. They will cost less and afford more real amusement than heaps of trifles. —(*English Mechanic.*)

THE CHEMISTRY OF MANURES.

Being an amateur gardener in a small way, I have been a constant reader of your Journal for the last three years, and most of the technical knowledge I have on the subject has been derived from its contents. I have often been interested, and instructed too, by the Rev. C. P. Peach's communications, especially those on bedding plants and "The Election of the Roses," but I cannot accept his teaching on the chemistry of manures as orthodox. That manures are valuable only in so far as they contain a maximum of nitrogen I do not believe, but I do believe that farmyard manure, as a general rule, is the

best, because it contains all the constituents of former crops, and is therefore best suited for the production of future ones.

When Mr. Peach states that nitrogen in the form of ammonia is useful, because in that state it forms a powerful solvent for every kind of carbon, I fear he states what he cannot prove by experiment. Did he ever try to dissolve the diamond, the purest form of carbon, with ammonia, or did he ever dissolve a particle of charcoal with it? How, then, can ammonia be a powerful solvent for every kind of carbon? It is quite true that powdered charcoal has been found very beneficial to plants, and that only when rain water containing ammonia has been used for watering; for if distilled water has been used, and no ammonia allowed to come in contact, the plants have soon sickened and died, but the charcoal has not been dissolved by the ammonia, nor taken up into the plant. It has the property of absorbing into its pores an enormous quantity of ammonia, as well as of carbonic acid gas, which the excess of rain water has the power of dissolving out again, and bringing it in contact with the roots of the plant, or of evaporating with it into the plant's atmosphere, so that the leaves can also absorb it.

It is well known that Liebig, many years ago, insisted on the doctrine that, providing all the mineral constituents required by plants were present in the soil, all the carbon, as well as the nitrogen, in the form of ammonia and nitric acid, would be furnished by the atmosphere. This was called the mineral theory. In his later writings he has modified this view, simply because the plant cannot get sufficient in the time assigned to its development; but he clearly proves that nitrogenous manures, as such, can only be of use when all the mineral constituents required by the plant are already in the soil. He also established the fact, now universally received, that carbon is conveyed to plants not in any organic combination whatever, but as a gas formed by the aid of the atmosperic oxygen, and called carbonic acid.

Reverting to the humus theory, as insisted on by Mr. Peach in the Journal some time ago as the source of carbon to plants, the true value of humus in the soil may thus be stated. As living organisms feed on the carbon restored to the air by their defunct predecessors, and as humus is but the *débris* of previous vegetation in a soil, the carbonic acid developed by its decay must play a proportionate part in nourishing the crop then in course of growth. Hence the necessity of an atmosphere within the soil to oxidise the humus, and thereby to reduce its carbon from the organic to the mineral condition, so as to make it assimilable by plants. The necessity of such an underground atmosphere is an established fact, air being as essential as warmth and moisture to the development of plants.

In this way do decaying organic bodies replenish the atmosphere, whether above ground or below it, with gaseous carbon, which the atmosphere in its turn conveys to the plants, whose leaves appear to inhale it as gas, but to whose roots it is supplied in watery solution. The carbon of the plant and the carbon of the soil have but one primal origin—the atmosphere. From this source the carbon constantly flows; to this reservoir it as constantly returns. The humus of the soil and the tissues of plants are but successive resting points for carbon in its circulating course.

The question of plants taking up free nitrogen from the atmosphere was studied and experimented on by Boussingault and others for more than twenty years, and by a masterly and luminous induction the nitrogen of the atmosphere was proved to be inactive in vegetation. Lawes and Gilbert, in an elaborate paper published some time ago, record the results of a series of valuable experiments on this point, and their conclusions are confirmatory of Boussingault's views—that all the nitrogen elaborated in plant-tissues are derived entirely from ammonia and nitric acid.

With respect to the hydrogen in plants, Mr. Peach argues that because water is such a stable compound when once formed, requiring such very powerful agents for its decomposition, therefore it is very unlikely that it should give up its hydrogen to plants. Did Mr. Peach ever watch the plants growing in an aquarium in bright sunshine? If so, he might have seen the leaves covered with minute bubbles of gas, and after a time, when the water became saturated with this gas, he might have seen large bubbles of it ascending through the water and escaping into the atmosphere. If he had collected some of this gas, he might have proved that it was pure oxygen escaping from the leaves of the plant, while the plant was vigorously increasing in size and form. Thus the humble plant has the power of decomposing water as well as carbonic acid, assimilating both hydrogen from the water and carbon from the carbonic acid under the stimulating influence of solar light.

In reference to iron in plants, Liebig in his "Natural Laws of Husbandry" says, "We know the part which iron performs in the animal economy. It is present in the animal organisms in no greater proportion than in the seed of the cereals, and we are fully convinced that without a certain amount of iron in the food of animals the formation of the blood corpuscles, the agents of one of the chief functions of the blood, is impossible. Hence by the laws of dependence, which link together the life of animals and plants, we are compelled to ascribe to the iron in the plant also an active part in its vital functions, so material that the absence of that metal would endanger the very existence of the plant." Iron, like all the other minerals required by plants, is dissolved by carbonic acid in water, and thus is absorbed by the roots of plants; and as all clays and strong soils contain abundance of iron, this may be one of the reasons that such soils are so suitable for Roses.

It appears, then, that no matter which has been organised can serve as food for plants until it has undergone decomposition, and that it is solely in the constant and regular supply of carbonic acid it affords that vegetable mould is more adapted for the support of vegetable life than any other kind of soil. And thus we see a very important difference in the character of the members of the animal and vegetable kingdom; for the first are entirely dependant for their nourishment upon matter that has been previously organised, and derive their support either from vegetable or animal bodies. The latter are dependant for their growth only upon the materials supplied by the inorganic world, although their increase may be advantageously assisted and stimulated by those which they derive from the decay of the former. Do we not here trace a beautiful harmony between the various parts of the great scheme of creation? for had vegetables, like animals, been dependant upon organic matter, both classes of beings must have gradually disappeared from the face of the earth, since the spontaneous death and decay of a large proportion of them is constantly restoring to the inorganic world the elements they have held for a time in those peculiar forms which are termed organic, and thus the amount of organic matter would be continually diminishing. But vegetables, holding an intermediate station between the mineral and animal creation, bring them, as it were, into connection with each other, preparing, as they do, from little else than the air and the water of the globe the materials for the sustenance of the countless millions of beings which move upon its surface, and which, when their allotted period of existence has expired, restore by their decay the elements required for the support of the vegetable life of their successors.—J. M., *Burton-on-Trent*.

ANTHURIUM SCHERZERIANUM.

Too much praise cannot be accorded to this extremely beautiful plant, and for exhibition and decorative purposes it ranks as one of our best. The curious and brilliant-coloured flowers, so different from any others of those belonging to our stove plants, are deservedly admired by every plant-lover. It is much to be regretted that there are many spurious varieties of this valuable plant; but such being the case, it is necessary to be very particular when purchasing a plant to be sure to get the best variety—I mean the large-spathed and brilliant-coloured variety, which I consider to be the best; but unless you can rely upon the honour of the person from whom it is obtained, you had better see the plant in bloom beforehand.

I think I may say, without fear of contradiction, that it is a plant of very easy culture—at least I have always found it so—but I am not so certain whether I am justified in calling it a stove plant, as in several cases I have found it do very well under cool treatment. I generally grow it in the stove, and when in flower turn it into a cool house, where it lasts in bloom for a very long period. It may be interesting to some if I describe my mode of growing this beautiful plant.

I have found two parts good fibry peat and one part turfy yellow loam, with a free admixture of silver sand, and a handful of charcoal the size of a walnut, suit this plant very well. In potting, I fill the pot two-thirds full with crocks, putting the larger ones at the bottom and the small ones on the top, covering them with a layer of sphagnum moss, so as to secure that perfect drainage so highly necessary. I then nearly fill the pot with the soil prepared, turn out the plant to be potted, and, removing the greater part of the old soil from

the roots, place it on the top of the soil, and fill in so that the plant is raised above the rim of the pot, like Orchids. A large plant I raise as much as 3 or 4 inches above the rim. When the soil has been packed around the roots, and the top of the pot made as near an oval as possible, I lightly water the top of the soil with a fine rose, so that I can then press it easily to the required shape. After this I take a little sphagnum moss and place a thick layer all over the surface, then water it a little, and press it closely and evenly all over, so that the plant presents a neat appearance. After this place it in a house where the heat ranges from 60° to 70°, frequently syringe and water it, and in due time, if all go well, it produces fresh leaves, from the axil of each of which a brilliant and beautiful-coloured flower is produced.—T. B.

REVIEW.

The Natural History of the Bible, being a Review of the Physical Geography, Geology, and Meteorology of the Holy Land, with a Description of every Animal and Plant Mentioned in Holy Scripture. By H. B. Tristram, M.A., &c. Second Edition. London: Society for Promoting Christian Knowledge.

Many years ago we endeavoured to collect information more satisfactory than could be found in one easily accessible volume relative to the plants, fruits, and flowers mentioned in the Old and New Testaments. Calmet, Celsius, Corquius, Hiller, Lemnius, Newton, Scheuchzer, and Ursinus are the alphabetical list of authors, still in our desk, which we then consulted, and finally reluctantly abandoned our research. The reason for the abandonment is told in one sentence inscribed on the bundle of relative MS., "It wo'n't do; no one but a botanist who has resided in Palestine can give reliable information." Dr. Tristram's volume contains such "reliable information" on every branch of the natural history of the Bible, for, as the preface tells—

"The main object of the present volume has been to illustrate, not technically, but popularly, every allusion to natural history in the Holy Scripture, by the actual condition of the country, and by the character of its existing products, zoological and botanical.

"For this special purpose, the writer spent nearly a year in the Holy Land in 1863–4, accompanied by botanical and zoological collectors, Mr. B. T. Lowne, M.R.C.S., and Mr. Edward Bartlett, of the Gardens of the Zoological Society of London, and made extensive collections in every branch of natural history."

We will confine our extract here to the Lily of the New Testament, premising only that we believe it to be a totally different flower from the Lily of the Old Testament. The latter is named in the Hebrew *Shushan;* and when residing in India we noted that a species of Lily very much resembling the Lilium spectabile is there called Soosan. Its flowers are crimson, and in this and other characters justifying the similes in the Song of Solomon.

In the New Testament the Greek word *krinon*, in our version translated Lily, is certainly not the Lilium spectabile, for it is not a native of the Holy Land. The following extract on the subject is a fair specimen of Dr. Tristram's very satisfactory work.

"There has been much discussion as to what particular flower, if any, is designated by these names. The Arabs have the same word 'Susan,' which I have found the peasantry apply to any brilliant-coloured flower at all resembling a Lily, as to the Tulip, Anemone, Ranunculus. We may fairly infer from our Lord's allusion that this Lily was abundant near the Plain of Gennesaret, where the sermon on the Mount was delivered, and that it was brilliantly coloured, for it surpassed the robes of Solomon in glory. That it was red we judge from the comparison with the lips of the Beloved. Rapid growth seems to be implied by the expression in Hosea; and in the Song of Solomon it is spoken of as flourishing in valleys, as springing up among the thorny shrubs, as growing in the plains where the gazelles (roes) pasture, and as cultivated in gardens. Now, though many plants of the Lily tribe flourish in Palestine, none of them give a predominant character to the flora. They are generally few and far between. The White Lily we do not know as a native. The only true Lily I have noticed is Lilium chalcedonicum, the red Turk's-cap Lily of our gardens, and it is not common.

"There are, however, many other plants which would in popular language be called 'Lilies.' The Irises are many in species, and some of them of wondrous beauty. Pre-eminent is one which grows in Tabor, through Galilee, and in the marshes of the Huleh, and which has been mentioned in glowing terms by Dr. Thomson. The species is undetermined, but the blossom is dark purple and white, and therefore does not meet the requirements of the Lily. There are many other species of Iris, among them the little Iris caucasicum, in the bare highlands of the south; Iris Sisyrinchium, and four or five others, in Galilee. The beautiful Gladiolus byzantinus, of many shades of purple and dark red, is very abundant in the corn fields and Olive yards throughout the whole country. The Narcissus is not common, though at least one species (N. Tazetta) is found, and on the tops of the mountains the lovely blue Ixolirion montanum. The Asphodels are very abundant on all the plains, but they have no beauty by which to claim a place among the Lilies. There are also many Squills—Scilla autumnalis, and others; the Grape Hyacinth (Muscari racemosum), and another species; some beautiful Fritillaries (Fritillaria persica) on the plains, and another (new?) species among the snows of Hermon and Lebanon. The Star of Bethlehem has been already mentioned; but none of these can claim to be the Shûshan. The Tulip is more probable than any which have been named, from its locality, colour, and abundance. The prevailing species is Tulipa Gesneriana, of a brilliant red, which grows profusely scattered over many parts of the country, both on the plain of Gennesaret and on the hillsides, pushing forth from crevices among the stones. Yet none of these bulbs give a general hue to the ground carpet.

Anemone coronaria.

"The true floral glories of Palestine are the Pheasant's Eye, the Ranunculus, and the Anemone, but especially the latter. The Anemone coronaria, well known in our gardens, of various colours, lilac, white, and red, but most generally a brilliant scarlet, is the flower which, as the most gorgeously painted, the most conspicuous in spring, and the most universally spread of all the floral treasures of the Holy Land, I should feel inclined to fix on as 'the Lily of the field' of our Lord's discourse. It is found everywhere, on all soils, and in all situations. It covers the Mount of Olives, it carpets all the plains, nowhere does it attain a more luxurious growth than by the shores of the Lake of Galilee. In the Olive yards of Ephraim, on the bare hills of Nazareth alike, there is no part of the country where it does not shine. Certainly if, in the wondrous richness of bloom which characterises the land of Israel in spring, any one plant can claim pre-eminence, it is the Anemone, the most natural flower for our Lord to pluck and seize upon as an illustration, whether walking in the fields, or sitting on the hillside. The Anemone also meets every requirement of the allusions in Canticles, and is one of the flowers called Susan by the Arabs."

Dr. Tristram's volume, like all the publications of the Society, is well printed on excellent paper, and is almost profitless cheap. We again commend the Society to our readers for their support.

MAIDSTONE CEMETERY.

Amongst the many forms which the taste of the last few years has taken, that of embellishing public places, and odd corners too, with trees, shrubs, and flowers is not the least important. Not content with increasing the number of such in the parks and public gardens of large towns, we occasionally find a piece of waste land over which stray donkeys and gipsies held undisputed sway for many years, suddenly

pounced upon by some of the reformers of the age, and instead of Gorse, Broom, Sedge, or Heath, trees and shrubs from the antipodes, with the choicest flowers that can be had, are planted, good walks formed, and seats constructed. Places the most uninviting are thus changed, as it were, by magic, and others that have long been thought incapable of improvement are similarly treated; and wherever there is a vacant plot of ground near a town, some one is sure to suggest that it be made ornamental.

During the last few years a great number of such spots have undergone a wonderful change, the desire for flowers being so general that there are few places where their culture is not attempted. The little back yards of London houses, where the sun, even if it can penetrate the smoky atmosphere, can only shine a very limited number of hours in the year, are, perhaps, not in a worse position than the ground at the back of a factory in a town of less dimensions. Attempts at decoration are, however, made in both cases; and, moreover, we generally see some odd corner in a workhouse yard, or even in a prison, embellished in the same manner, but with greater success, owing generally to the more healthy sites of these places. Hospitals, too, have their garden ground, and, perhaps, there is no place where such things are either more becoming or more appreciated. The churchyards of most large towns that have been closed have also been judiciously ornamented with shrubs and flowers, and some years ago I was much pleased to see the ground surrounding the Sunderland Waterworks very nicely garnished with trees, shrubs, and flowers. As it was situated on lofty ground about a mile from the town, it afforded a pleasant walk. Other places have also their embellishments of a like kind, and though taste may differ as to the way in which they are made, there can be no question that the general public appreciate it. Then there is one hallowed place which above all others is, or ought to be, embellished in a becoming way, and that is the cemetery. The quiet retreat of those who come to visit the resting-place

Maidstone Cemetery.

of departed friends need not be rendered less serious by the cheerful hues of some of Nature's gayest ornaments. A gaudy dress and a gaudy flower-bed have nothing whatever in common; in fact, I am not sure that we ought to call any of Nature's productions gaudy, for however brilliant the colours may be, there is a chasteness in everything that springs from the earth that we look for in vain in any manufactured article: hence I do not see any objection to the introduction of the brightest colours of the parterre into the cemetery garden, although I do not say this ought to be done as regards individual graves; on the latter a more sober class of subjects should be used, as plants and shrubs of lowly growth.

At present, however, my purpose is the general laying-out and keeping of such places and their embellishment with suitable trees, shrubs, and flowering plants. As an example is always preferable to the ideal, I will here point out one place which I believe will vie with any of its kind for the taste and skill displayed in its management, and its general good keeping throughout the year.

Maidstone Cemetery is about a mile from the town; a pleasant asphalted pathway by the side of one of the principal thoroughfares gives access to it. The situation is somewhat high, and is rendered more pleasant by the view obtained. The town, lying partly in a valley, is seen to the north; to the north-east is the extensive park of The Mote (Lord Romney's), while westward for some distance all is Hops and cultivated ground, every inch of which is rendered productive. The entrance to the cemetery is by appropriate lodge gates, from which a broad gravelled road slightly curves until it approaches the chapels, after which wheeled carriages are supposed to go no further. The dressed grounds in the immediate neighbourhood of the entrance are very pretty. Two stately Irish Yews flank the roadway on each side, and between them, on the well-kept turf, are some neat, even-sized standard Roses in pebbled circles, while a little way on are two handsome Deodars standing further back. The cottage of the Superintendent is a little way to the left, and near to it, and of easy access by one of the many walks by which the grounds are intersected, is that now essential appendage to all places of public resort, a drinking fountain.

Following the carriage road, however, we perceive that at a point where it separates to reach the two chapels, a broad straight walk unites. This walk, as may be expected, is not intended for wheeled carriages, but, extending in a straight line to the extreme edge of the grounds, is terminated by a large raised mound well covered with Ferns. This fine central walk is bordered by dwarf-stemmed Portugal Laurels cut into shape and facing each other at stated intervals, each plant

being in a circular bed, which is either edged with the variegated Arabis or some other white-leaved plants, while between them Portugal Laurels, and in the same line pyramid Hollies, are planted and are growing well. The ground around these Hollies is formed into a long bed or border corresponding with the circular beds on which the Portugal Laurels grow, and these borders, which constituted by far the greatest portion of the length of the whole, were planted with bedding plants. Further on a large circular bed in the middle of the broad walk forms a central object to which other walks point. This bed is 30 feet in diameter, and was planted embroidered fashion in a pretty design, the figuring of which was done with Cineraria maritima, scarlet Geranium, and Purple King Verbena. Cerastium also formed a part. A neat ornamental kerb edging surrounds the bed, and adds materially to the general effect. I ought also to mention, that just before reaching this large bed I noticed a beautiful pair of Wellingtonias, which threatened at some time not long distant to outgrow their allotted space. On the other side a similar pair of Thujopsis borealis were equally promising, but not so likely to encroach on the pathway in a horizontal direction. These fine adjuncts to the walk are backed on each side by a very even and uniform row of trees of Pinus austriaca which promise to become a fine avenue, the width being about 60 feet. The bushy sturdy appearance of each tree was all that could be desired, proving that the dry stony soil of the place is suited to this Pine.

I have stated that the broad central avenue terminates at a large mound of Ferns, and it is a large one, being with the noble specimens upon it closely approaching 20 feet high, and of considerable length, with a path at the back, and sundry variations of surface, forming an agreeable whole. The plants are in the most luxuriant health, considering that water is only obtainable in limited quantities; but apart from the huge bushes of Lastrea and Athyrium, most of the other kinds that constitute a Fern-fancier's choicest treasures are here, for Mr. Davis, the Superintendent, has been an enthusiastic admirer of Ferns for years. But I must not linger here, as other portions of the ground have to be looked over, and taking one of the side paths which meet the fernery as well as the broad one alluded to, and following its easy and agreeable curves, we find that large open breadths of ground, destined to become the resting-place of those now living, have been ornamented for the time with large beds of Dahlias, Cannas, and other plants, with a suitable mixture of trees and shrubs. Smaller beds adorn the sides of the walks, and a broad belt of shrubs and herbaceous plants, with quantities of Geraniums, effectually screen the boundary wall, and give to the whole that air of quiet repose so becoming to a place of this description. The tombs and monuments with which the central part more especially is dotted, interspersed as they are with healthy shrubs and trees, add materially to the effect, and give it a character which does not belong to ordinary pleasure grounds. Abundance of flowers are to be met with everywhere, not always in mechanically-trimmed beds, but in those where the plant, whatever its character, has full scope to grow to its own proportions, with only such care as tying or cutting away unruly growths. In all other respects plants were allowed to take that most beautiful of all forms—the one that Nature intended them to take. Amongst those which still graced these mixed borders at the time of my visit (the end of October) were some good forms of the double yellow and cream-coloured Chrysanthemums (C. regale, I believe), very dwarf Tagetes signata, double yellow French Marigold, Calceolarias, seedling Petunias, and Geraniums of all colours. Mr. Davis takes much interest in seedlings, and by dint of care and good management contrives to flower them the season in which the seeds are sown; many that were flowering in the borders were only sown in March, and treated much the same as Asters and other half-hardy plants. A tall plant in the outer border was also in full flower—a Rudbeckia' I believe. Asters, Phloxes, Stocks, and other showy and useful plants common at the season, were also grown in great numbers.

As the decoration of graves is a subject on which there is a great diversity of opinion, I will not enter upon it here, but may revert to it at some future time. One remark on this head, however, must be made, and that is the mode that Mr. Davis has adopted in marking the last resting-place of the poor, those whose relatives have not the means to raise a tombstone or other enduring mark to denote the position where the departed lies; and that is, instead of rounding the grave to an inconvenient height above the surrounding surface, to merely raise it about 4 inches high and make the top flat, being an oblong shape with neatly sloping edges. The advantage of this plan is, that the turf does not die and crumble-off in hot sunny weather, as it invariably does in the usual way when the grave is raised to an inconvenient height, and the appearance is certainly in every way better. On the character of the more costly monuments it is unnecessary to remark further than that the usual diversity exists, and that the good keeping of the grounds, the shrubs, and the trees, give an effect without which polished marble, porphyry, and granite look tame.

The extent of the grounds is upwards of twenty acres. One corner alone remains in its original state of Oak timber and coppice, and this space of perhaps a couple of acres forms an agreeable feature, being interseeted by excellent walks, with seats under the trees; this part is much frequented in fine weather. Another corner judiciously planted out is the *sanctum sanctorum* of the worthy Superintendent. An old quarry hole has been converted into a nursery and repository, in which Mr. Davis keeps his winter stock of plants, and propagates in the spring; but the extent of glass is very small—some two or three pits, a small span-roofed house with a narrow path up the centre, and some makeshifts for wintering Calceolarias, Gazanias, Centaureas, and other plants, in which mats, &c., do the duty of glass. The whole of these structures at the time of my visit were full to overflowing. One of the most pleasing sights was a number of seedling Geraniums of the Tricolor class completely filling two I road shelves suspended close to the glass; these interesting little plants, all in 3-inch pots, looked very pretty, and, no doubt, many of them will turn out good. There was a nice lot of the new Cineraria acanthifolia, which Mr. Davis had grown to some extent the past season, also Echeverias; but Mr. Davis wisely abstains from growing Coleuses and other tropical plants, as wintering them is beyond his means. Every place was full, and will be so until May, and the wonder is how with so limited an extent of glass such a number of plants can be furnished. This can only be done by assiduity and good management, as the means and materials are alike scanty.

In concluding, it is only just to Mr. Davis to state that to him is due in a great measure the success of a Gardeners' Mutual Improvement Association at Maidstone, formed eight or nine years ago, numbering upwards of four hundred members, one-half being gardeners or connected therewith, the other honorary members. The gardeners' subscription to the Society is only 4*s.* per annum, and yet from such small sums the Society managed in one year to dispense upwards of £40 in assisting its sick members, or in payments after death to friends, while they have upwards of £200 in hand. Mr. Davis has always been one of its best workers, and he worthily occupies the position of President.

The Cemetery at Maidstone is so beautiful that I would advise the boards of management of similar places about to be formed to send an efficient inspector to look over it before beginning operations, as I feel assured he would see and learn much that might be turned to useful account, and he would be received by Mr. Davis with that true courtesy which seems to be in its fullest enjoyment when imparting information.—J. Robson.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Whatever vacant ground remains untrenched should be operated upon without delay; even if not cropped just yet, it will be much benefited by the continual exposure of fresh surfaces to the influence of the atmosphere. This object is attained by frequent forking, which often conduces as much, sometimes more, to the production of healthy vegetation as the application of manure. In most localities, with a season so favourable as the present, the principal sowings of summer crops will be completed, and there will be more time to attend to hoeing, surface-stirring, and earthing-up amongst advancing crops. Sow *Brussels Sprouts*, *Chou de Milan*, *Scotch Kale*, and *Savoys* for early winter supply; also Grange's Early White and the Early Purple *Broccoli*. Sow a good supply of *Cauliflowers*, *Cabbages*, *Celery*, and *Lettuces* in the open ground to succeed those forwarded by artificial means. Advancing crops of *Peas* should be shaded from the effects of the sun in frosty mornings, and the earth kept well pulverised and drawn up to the rows as they advance. Sow more *Peas* and *Beans* for succession, together with *Spinach*. Most varieties of *Lettuce* sown in the open ground should be left to perfect themselves in the seed bed, consequently the drill system is preferable. The

Bath Cos, and varieties of the Green Cos, are better of being transplanted. If any of the early-planted *Potatoes* are peeping out, they had better have a little soil drawn over them, or be otherwise protected.

FRUIT GARDEN.

Apricot blossom is now fast expanding, and, of course, timely protection must be afforded. Coverings not intended to be often removed should be light and airy; thick heavy material must be so arranged as to be removed when the weather is favourable; the former are considered preferable. Strawberry beds should be dressed; remove all dead leaves and superfluous runners, and stir the surface of the soil. Tie down a good many of the weak and short-jointed branches of Pears and Plums on walls or dwarf espaliers. This will be found much better than the old or spurring-back system. In the meantime, cut away all over-luxuriant wood close to the stem. Destroy all insects before the trees bud, clear off all scale, &c., using a wash chiefly composed of clay, water, and sulphur.

FLOWER GARDEN.

Mowing and dressing lawns will now require attention. Lawns or portions of them having a hungry sandy soil, and liable to "burn," should have a slight dressing every spring; even common soil will benefit them, as it causes the production of another tier, if I may use the term, of surface roots, of course increasing their number. However, a dressing of marly or clayey soil in a highly-pulverised state would obviate the tendency to burn. A slight dressing of guano has an excellent effect in such cases. Those who desire to have Moss and Provence Roses throughout the summer should now cut back a number for that purpose, merely pruning away the parts which have budded. Auriculas and Polyanthuses will now require attention; air must be admitted in abundance daily; watch the trusses as they appear, and pinch off all the weak ones, for if it be desired to have them strong and in full perfection, only one flower-stem should be allowed to remain. Stir the surface of the Tulip beds, and give occasional waterings with manure water during dry weather. The Tulip delights in abundant waterings, unless the soil is naturally wet and stiff. Stir the surface of Pansy, Pink, and Carnation beds. Keep a good look-out for mice, slugs, and wireworms.

GREENHOUSE AND CONSERVATORY.

At no period of the year, perhaps, is caution in the use of fire heat more needed than in March. March winds are proverbial, and March suns are at times very bright. Now, as these winds are by no means to be desired in hothouses, the best plan is to keep down fire heat to the lowest possible pitch all the morning, and, where forcing is going on, to have a lively fire for a couple of hours in the afternoon, say from 3 o'clock until 5 P.M. By these means the necessity of giving much air will in some measure be obviated, and the climate within will be maintained in a more wholesome state as regards moisture, &c. At this period frequent attention will be necessary both in giving air and taking it away gradually. A small reduction should be made soon after noon in forcing-houses, and the air should be entirely shut off as soon as it is considered safe. Slight shading will soon be of importance. Camellias growing should be so placed as to receive more shade and also more atmospheric moisture than the general inmates of the conservatory; in fact, they are better in a little close house by themselves, which should be kept up to 70° by day and 60° by night, receiving much the same treatment as Orchids at this period. Large specimens of Fuchsias should now receive liberal shifts; with well-regulated potting and thorough drainage they should be fit to place in their final pots or tubs at once. Heaths may now be shifted; use abundance of drainage and sandy heath soil full of fibre; thrust it in lumps round the ball, now and then forcing down pieces of stone or lumps of charcoal, and finally coat over the surface with some of the finer portions of the soil, which should have a liberal amount of sand. The ball must be thoroughly moist before shifting, for if quite dry no after-watering can bring it right. Pot Cape and other bulbs as soon as the foliage is becoming strong. Use chiefly loam, leaf soil, and silver sand.

STOVE.

Keep up a lively growing temperature during the day, and do not stint moisture in the atmosphere. Syringe and shut up early at a temperature of 80° or 90°, but let it fall to 65° or 60° before the following morning. This is the season of progress in plant culture, therefore proceed vigorously with the shifting of plants in the stove. Growing Orchids will now require slight shading for a couple of hours during bright sunshine, for fear of too copious a perspiration, also in order to retard Dendrobiums, &c., in blossom; the latter, however, will do extremely well in a dry warm parlour or drawing-room, only they will occasionally require a good watering at the root. A moderate amount of atmospheric moisture will suffice for these plants when in flower; the growing specimens must at this period have a considerable increase. Now is a good time to sow imported or home-saved seeds of tropical plants. Half fill the pots with drainage, use peat, loam, and silver sand in equal parts. Water thoroughly but slowly with a fine-rosed pot, and cover the surface with a good coat of sphagnum. They may be placed on a warm shelf in a shady part of the house.

PITS AND FRAMES.

The light and heat of the sun which we have been favoured with lately begin to effect a change amongst the plants; the blanched appearance which the foliage has shown lately is giving place to a lively and healthy green. Pay due attention to air-giving and watering. A little manure water once or twice a-week will be beneficial. Let the strong-growing varieties of Verbenas which may be affected with mildew have a good dusting with sulphur vivum. Those Roses which are kept in pots for plunging into the turf to bloom during summer and autumn, should now be looked over, if necessary the whole of the soil shaken from the roots, and the plants repotted in a rich compost. Plants of Maurandya, Rhodochiton, Lophospermum, and other flower-garden climbers should now be selected and shifted into larger pots. Let every encouragement be given them that they may attain a good size before June. Keep the plants free from vermin and insects. If there are any signs of green fly fumigate immediately. Continue potting-off stock for the flower garden, also making cuttings of Verbenas, Fuchsias, Petunias, Dahlias, Geraniums, &c. They will all be wanted. Shade newly-potted Stocks, and more especially cuttings. The leaf should not be first allowed to flag, and then an attempt be made to restore it by abundance of water; it must never be allowed to droop. Cut down and place in a cold frame the most choice kinds of Cinerarias for suckers after they have done flowering, and put in a stock of Chrysanthemum cuttings for autumn display.—W. KEANE.

DOINGS OF THE LAST WEEK.

KITCHEN GARDEN.

SOWED good breadths of Onions, Carrots, Parsnips, and successions of Peas and Beans in ground which had been well stirred and well sweetened by aëration. In rather stiff loam, however, we rarely omit in garden sowing to have some finely-riddled compost, as the refuse from potting benches, with dusty charcoal, thrown over the rows of all our smaller seeds, and if the soil is damp enough beneath, the seedlings come through stronger and healthier. Although we often sow rather thinly, we rarely fail to obtain a thick-enough crop of young seedlings, as we thus give them the most favourable condition for healthy germination.

Put in a good lot of Potatoes, the ground which had been well turned previously working beautifully. See what was lately said about planting sets of this vegetable. All sorts of Cabbage Sprouts, Borecoles, &c., are very abundant now, and the more that is taken from them the better will they yield, and the more tender will they cook. This more particularly applies to that delicious vegetable, Asparagus Kale.

Sowing Peas.—It is better to sow in a trench of from 9 to 12 inches wide, and 2 inches deep, in preference to a drill drawn out by the hoe. After the ground is prepared it is well to run the foot along this narrow trench, so as to firm it a little before scattering the Peas 2 or 3 inches apart over the bottom, in which position they generally grow better than if put in more thickly. It is as well to have this drill so wide as to admit of the seeds being gently patted down by the back of a spade before covering them over from 1 to 1½ inch; for early work we generally use, as in the case of small seeds, some fine rich compost. If ever it should be necessary to water such Peas the shallow trench presents a great advantage.

Red-leading Seeds.—As regards the amount of water that should be used for this purpose, we would recommend as much as will damp all the seeds, and no more. As much lead as can be easily held between the thumb and two fingers will be sufficient for a quart of Peas, and should be stirred amongst them with a stick, and not the fingers, until every Pea is coloured. A small trowel, also, should be used for sowing with. In the case of small seeds, as Turnips, Lettuces, do not colour

more than can be sown, as if kept dry afterwards they are apt to be injured. The lead has no injurious effect whatever when the seeds are at once committed to the ground.

FRUIT GARDEN.

A few frosty mornings have done a little good in retarding free growth. Trees against back walls in orchard house are in gorgeous bloom. Cherries and Plums in pots are swelling, but none of the flower-buds opened on the 16th. The latest house is open night and day, and will be shut at night only in expectation of frost. This house has not had the surface soil thoroughly cleaned, but it must be done directly, for though a dry atmosphere is good for Peaches and Apricots setting their bloom, a too-dry soil about the roots is apt to make the buds drop. If the soil has become a little too dry, it is not good policy to inundate the roots at once, but water by degrees; or if the border holding the roots is wide, water only a width of 2 feet or so at a time. When in pots it is well to give the trees from a pint to a quart at first, and more in a few days. A thorough drenching at once is apt to be followed, as in the case of a too-great dryness at the roots, with the dropping of the flower-buds before setting takes place. Although in winter the roots had better be dry rather than soaked, still the safest plan is never to allow them to be too much so. The chief reason why the ground or floor of this orchard house has not been cleaned before now is that there are still many fine Lettuces between the trees in pots, which have been and still are very useful.

Fruit trees fresh planted will be greatly helped by a little shading in these hot scorching days. A little shade of some evergreen boughs, and a sprinkling from the syringe, will be of more benefit than deluging the roots. The time when fresh-planted trees and shrubs stand most in need of watering is when the fresh roots begin to work in the fresh and somewhat heated soil. See what has lately been said on the different modes of protecting fruit-tree blossom.

Vine Border in an Orchard House.—Some years ago we planted some Vines in front of an orchard house, giving them about 2 feet of good fresh soil. We intended to take up the open-air walk in front, but could not get at it until lately. We removed as much as we durst of the chalk and lime rubbish that formed the bottom of the walk, and found that fine roots had gone through it on their way to the open fruit quarters beyond. We have filled up the space, which is nearly 18 inches in depth, with an admixture of the best soil and some crushed bones, and have placed merely a layer of 2 or 3 inches of gravel on the surface. As confirmatory of Mr. Lane's experience at Berkhampstead, these Vines did better than could have been expected, and that with no border-making. We think, however, that removing the bottoming of the walk will give unusually rich feeding ground for the roots.

Lately as regards our second vinery we laid aside the litter that kept frost from the border in winter, put 9 inches of hot leaves over it, made a wall back and front of the litter, put a pole lengthwise over it, and then plunged a number of small pots of autumn-struck Geraniums in the border, which we protected with old sashes, mats, &c. We have used no heat in the house, except such as was sufficient to keep flowering plants for use, but the slight heat in the border, and the few days' sun reaching the roots, has caused the buds to swell strongly. The late vinery we are treating much as the orchard houses, keeping it as much back as possible, and giving air all night in this mild weather, though the house is full of cuttings and flowering plants. What we wish to impress on young readers is that, to make the most of glass room, vineries may be made plant-repositories in winter if the temperature does not exceed 45° by fire heat, and the Vines will not be injured. When the temperature is raised to suit the Vines, then comparatively hardy plants in the house will suffer.

ORNAMENTAL DEPARTMENT.

Town Gardens. — We have had endless complaints that, do what they will, occupiers cannot get plants to grow. There are two chief reasons for this—the gardens in general are composed of the gravel, clay, and hungry earth that have been dug out as foundations for buildings, and it requires time to improve them, as well as labour and enriching material. If a lawn is made there is generally this advantage, that from the poorness of the ground the grass may be kept tolerably fresh and with a minimum of mowing. When the soil is poor a little manure and fresh loam would help it. But in close neighbourhoods in cities there is generally rather too much of manurial matter in the shape of blacks and soot, and though some of our artificial manures would do good where the soil is unusually hungry and poor, we have noticed the best results most economically produced by deep stirring, and, if the soil was at all stiff, adding a surfacing of sandy soil. Even a little fresh lime would produce a magical effect on a piece of ground that really was too rich in mere manurial matter.

What we have said applies to out-door work, and we are convinced that the best cultivators in such close atmospheres as London and the densest parts of Manchester and Liverpool will endorse it. To all, however, who can afford glass as a covering, a good deal of pleasant gardening may be conducted in the closest and smokiest of towns. In such cases Ferns, Mosses, and even many of the best tropical plants, may be grown well, because comparatively small air-openings are necessary. But even greenhouse, half-hardy, and alpine plants, can be cultivated successfully under glass if the ventilators are large and are covered with such materials as fine gauze or tiffany that will admit air purified from the blacks. When we tried this in London we found that the gauze if not renewed wanted washing every fortnight in dull foggy weather, but in bright sunny weather it would go often for two or three months. With such a simple precaution hundreds and thousands of our friends in large towns could have their little greenhouses attached to their houses even in a smoky atmosphere. It is many years since we saw fine Polyanthus and Auriculas on the leads of a house in London, and doing nearly as well as if they had been under a frame in the open country. The thin gauze was the secret of the great success. Auriculas should receive plenty of air, be carefully protected from the rain, and watered with cool manure water made from cow dung two or three years old as often as they can absorb it.

As soon as possible we will have all empty flower-beds turned over again, that they may have the full benefit of exposure and pulverisation. In all such cases where quick growth is a matter of importance, the best and richest soil should be kept near the surface. Sowed Yellow Pyrethrum, Amaranthus, Perilla, and seeds of many other plants as recommended in recent numbers. Potted Coleus, Mosses, Ferns, and Geraniums.—R. F.

TRADE CATALOGUES RECEIVED.

George Poulton, Fountain Nursery, Angel Road, Edmonton.—*Descriptive Catalogue of Plants and Cuttings.*

J. C. Wheeler & Son, Gloucester, and 59, Mark Lane, London.—*Illustrated Book on Grasses.*

TO CORRESPONDENTS.

*** We request that no one will write privately to any of the correspondents of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely to The Editors of the Journal of Horticulture, &c.*, 171, *Fleet Street, London, E.C.*

N.B.—Many questions must remain unanswered until next week.

BOOKS (*E. W.*).—"The Garden Manual," price 1*s.* 6*d.*, and Keane's "Out-door Gardening," 1*s.* 6*d.*, contain all you name. They can be had free by post from our office for 2*d.* extra.

BACK NUMBERS (*J. D.*).—You can have the numbers you name at 3½*d.* each if you restate them, enclose the stamps, and send your address.

COLOUR OF PALINGS (*S. G.*).—Paint them dark stone colour. Fruit trees are benefited by being retarded in blossoming. Palings or walls if blackened promote early blossoming.

SCARLET GERANIUM (*T. S. S.*).—There are hundreds of varieties similar yet superior to the flowers and leaf you enclose, but no one can judge of the merits of a Geranium unless he sees an entire plant.

EVERGREENS UNDER TREES (*C. R. B.*).—See what we said last week about evergreens for a rookery. You may add to that list Berberis Aquifolium and B. Darwinii.

DECAYED PEAR SHOOTS (*C. C. E.*).—A form of canker, probably caused by the roots having descended into an ungenial soil. Pruning the descended roots, and mulching the surface throughout the growing season, will probably prevent a recurrence of the disease.

VIOLETS (*Bittiswell*).—Your Roman Violets are good in size and very fragrant, but not so superior as they were in Hants It is the common sweet-scented Violet, called by Italians Viola mammola.

ROSE GABRIELLE.—There has been no such Rose as this, I think, within the last twenty years. Probably the Rose "C. D." means is Gabrielle de Peyronny, which is in all the florists' lists. I have three plants of it here. It is fiery red with an occasional violet tinge. Its petals are very concave, and it folds them towards the centre, and sometimes it presents an uneven aspect. It is hardy and a good grower.—W. F. RADCLYFFE.

ROSES MILDEWED (*Lancaster*).—The Rose leaves sent are mildewed. The cause is probably the dryness of the soil. With a crowbar make holes 18 inches deep at 9 inches apart, and fill them with water so as to give a thorough soaking. Repeat this two or three times, then sprinkle the border

with guano and salt, in the proportion of two parts of the former to one of the latter, and water well afterwards. Stir the ground a day or two after the watering. Half a peck of guano and salt to 20 square yards will be sufficient. We should also syringe them with soot water—one peck to thirty gallons of rain water—and at this time of year in the morning.

Rose Budding, &c. (*K.*).—For dwarf bushes cut down the stock to within 6 inches of the ground. The colour of the Potato sprouts varies in proportion to the degree of light. Brahma pullets and a coloured Dorking cock are most profitable.

Dinner Table Decorations (*L. H. T.*).—We never heard of the catalogue you inquire for.

Cyclamen after Flowering (*G. D.*).—If they are varieties of C. persicum, continue them in the house where they are grown, or in a temperature of 45° to 50°. Let them have a light airy position, and enough water to keep the foliage from flagging. At the end of May plunge them in coal ashes in a frame out of doors, and in June the lights may be removed, and the plants covered about half an inch with cocoa-nut fibre refuse. The situation should be open, but shaded from the sun at midday. Here they may remain until they begin to grow; they should then be potted without disturbing the roots, and be placed in a cold frame kept close. In September they should be set near the glass in a house with a temperature between 50° and 55°, and kept there until they show for bloom. They will continue longer in flower in a house with a temperature of 45° to 50°.

Compost for the Gladiolus (*E. H.*).—You may improve your heap of decayed hotbed manure, old sowdung, loam, and road scrapings by mixing with it an equal quantity of sandy peat and cocoa-nut fibre refuse, together with an abundance of sharp sand.

Primula, Cineraria, and Calceolaria Seed—Berried Aucubas (*St. Horori*).—The seeds will keep good until next year, but their vegetative power will be diminished. The newer the seed the stronger and healthier the plants. There is no difficulty in making Aucubas bear berries. Keep the pollen of the male flower until the female flower expands, and then apply it with a camel's-hair brush. Some take up the female plants set with flower-buds, pot them, and place them in a cool house in order to bring them into flower at the same time as the male plants; otherwise, as the latter flower the earlier, the pollen should be collected and kept in clean dry paper till required for use.

Climbers for Stove (*D.*).—We presume you require them for shade. Passiflora princeps, Passiflora quadrangularis, Stephanotis floribunda, Allamanda Hendersoni, Ipomæa Horsfalliæ. Hoya imperialis is cultivated for its flowers, and has a fine effect when well grown.

Waterproof Cover for Frames (*C. P.*).—Box-covering canvas will do. Take 1 gill of turps, one-fourth ounce camphor, a quart of linseed oil, and 1 oz. soft soap; mix all well together. Paint the canvas with that, with a brush; it will render it durably waterproof and very flexible.

Preparing Flower-beds, &c. (*F. I.*).—Your soil being very stony, we should take out the beds to a depth of 2 feet, place the top soil and turf at the bottom and sift the rest with a three-quarter-inch sieve. Mix with the sifted soil one-third leaf soil, or one-fourth of well-decayed manure; also some turfy loam. Raise the beds, to allow for settling and to add to the effect. Verbena venosa may be sown now. The seedlings should be grown in heat, pricked off an inch apart when they can be handled, hardened off by the end of May, and planted out then or early in June. They will flower from August until cut off by frost. You may grow Cucumbers as you propose, but they will not succeed so well as if you were to put in some fermenting dung and cover the bed with soil.

Apples for Espaliers (*F. H.*).—We apprehend you intend to have them on Paradise stocks, and in that case they should be 12 feet apart if the espaliers are 6 feet high, or 15 feet if they are 4 feet high. *Kitchen Apples*—Lord Suffield, Cox's Pomona, Bedfordshire Foundling, Dumelow's Seedling, Bleuheim Pippin, Winter Majeting, and Gooseberry Apple. *Dessert*—Irish Peach, Kerry Pippin, Cellini, King of the Pippins, Cox's Orange Pippin, and Nonpareil.

Geranium Leaves Spotted (*Box*).—We think the cause of the spotting of the leaves sent is the roots being in a rich soil and kept too wet and cold. Give the plants a temperature of 45° to 50° at night, admit air freely, and do not water until the soil becomes dry; then give sufficient to show itself at the drainage. If the plants have not been repotted shift them now, using three parts fibrous loam light rather than heavy, and one part old hotbed manure or leaf soil, with a free admixture of sharp sand. Remove most of the old soil, and use pots no larger than will hold the roots without cramping. The position should be airy and well exposed to the light.

Anemones with Bedding Plants (*M. L.*).—The Anemones may safely be left in the ground, and the bedding Geraniums, &c., planted between the rows, so as not to interfere with the Anemone roots. The border ought to be top-dressed in autumn with partially decayed leaves and light soil to the depth of about half an inch. Stir the border lightly with a fork before applying the top-dressing.

Laurels under Beeches, &c. (*W. Nock*).—They will grow under Beeches and so will Ferns, also many other evergreens besides Laurels. We know of no other mode of banishing rooks, than by destroying their nests as fast as they are constructed, and by shooting them. Tastes differ even about rooks, for we know many owners of plantations who have tried in vain to induce rooks to frequent them.

Ventilation for Fernery (*W. H. K.*).—An opening at each end near the apex of the lean-to roof would be ample for such a short house. We would advise, however, that the roof should be covered with No. 1 tiffany in summer, or the glass shaded with milk, holding a little whiting in it. This if put on outside in sunshine, and when the glass is dry, will keep on until autumn. It is better to err on the safe side, if not having too much whiting at first. A piece as large as a good-sized walnut, and finely powdered, would do for two quarts.

Heating from Bath-room Fire (*R. F. W.*).—We fear that you will not succeed satisfactorily in working your fernery from the same boiler as heats the bath room in the way proposed, not because both could not be well heated by following similar arrangements as respects the supply-cistern, &c., but simply because the pipes in the fernery would be below the level of the boiler. As you cannot sink the boiler in the kitchen, you could so elevate the floor, or even the pipes, in the fernery as to be above the level of the top of the boiler. In this there would be no difficulty. We saw some time ago a little house effectually heated, though the boiler was fully 2 feet above the floor. Three one-inch pipes were fastened by brackets against the back and ends of the house, fully 15 inches above the top of the boiler at the lowest point, and 20 inches at the highest point at each end. By bringing the water down as you do for the bath room there would be little difficulty. When without such contrivance, you heat on different levels, it is well to have valves to give the flow to the lowest levels first, and then they willkeep it.

Capsicum Culture (*A Two-years Subscriber*).—Directions on the subject are in another column of this number.

Chinese Arbor-Vitæ Dying off (*Arbor*).—We should attribute the plants' dying to the dryness of the border, and it would be increased by the plants being placed close to the wall. Probably the shrubs were planted shortly after the soil was thrown up loosely against the wall, and the roots may therefore be growing over hollow ground, and water may not thoroughly moisten it. We advise you to see that the soil has not cracked or parted from the wall, to put it close there, to give a top-dressing of rich compost, and to thoroughly soak with water. The plants ought not to have been nearer the wall than 2 feet. We think the cause is dryness, accompanied or aggravated by cutting winds. Arbor-Vitæ are only suitable for an outer screen in sheltered positions.

Golden Pyrethrum the Second Season (*A Subscriber*).—The plant will answer the second season, but flowers so freely that we advise your planting offsets, which would be more suitable as an edging to a circular bed. Take off the rooted parts, and water in dry weather until established. It is early to plant out Agapanthus umbellatus, even in a sheltered situation, but you may safely do so if you protect in frosty weather. If the plants have been wintered in a greenhouse protect them for a time in a cold pit, give abundance of air, and defer planting-out until May. Glue would answer to mix with whiting to brush on glass for shading, but even that would not be proof against heavy rains.

Hyacinths after Flowering (*Moote*).—The best plan is to harden them off, and plant out in the open borders of the garden, covering the bulbs about an inch deep. They are of little value the second season, but are pretty for borders, and will improve. The border should be sheltered, sunny, and well drained. They may remain permanently.

Plants for Room Window (*Idem*).—Fuchsias would be suitable, also zonal and variegated Pelargoniums. We should prefer fine-foliaged plants, as they endure better the dry air of rooms. Richardia (Calla) æthiopica, Ficus elastica, Latania borbonica, Seaforthia elegans, Myrtle, and Acacia lophantha, if small well-furnished plants, are good and very enduring. If you want colour Veronica Andersoni variegata, Coprosma Baueriana variegata, and Dracæna australis, terminalis, and stricta.

Arbor-Vitæ Hedge Treatment (*Inquirer*).—You say nothing regarding the height you wish, but in the first or second year it will only need watering in dry weather, and care in preventing weeds from choking the bottom. If it is the height you wish, cut it off at that in April, and prune the upper part of it narrower than the bottom, so as to cause the latter to grow more vigorously. The hedge should be about 18 inches wide at bottom, and a foot wide at top.

Depth of Drains (*Idem*).—The depth of drains should be sufficient to free the subsoil of water. They should be deeper in clay soils than in those which are light and porous—in no case less than 3 feet, and better 4 feet. We think you intended the distance between the drains when you wrote "depth." The distance in a very stiff clay subsoil should be 15 feet; in clayey soils, but with some stones or sandy loam intermingled, from 18 feet to 21 feet; in a strong loam, 21 feet; if with sand or stones, 21 to 24 feet, and with a gravelly or sandy bottom, 24 to 27 feet,; depth 4 feet.

Arabis lucida variegata not Thriving (*A Subscriber*).—This plant in some soils frequently does not thrive, especially where the ground is heavy. Plant in well-drained soil, and give liberal dressings of well-decayed manure and leaf soil, adding plenty of sand if the ground is heavy. Pick off the flowers, as they only weaken the plant. The leaves sent were quite healthy. It is rather slow of increase.

Cinerarias Dying off Suddenly (*Idem*).—The plants are suffering from what is known as the Cineraria disease, which also affects the Calceolaria. We know of no cure. The plants die off at the collar. The disease may be caused by placing the stem of the plant in contact with decomposing vegetable matter, and by frequent waterings keeping the collar constantly wet. The plants that die off are in most cases the most vigorous. We find keeping the collar of the plant above the surrounding soil, and watering only when needed, to be the best preventive, but the disease manifests itself under the most careful treatment.

Lime for Destroying Moss (*C. M.*).—The application of fresh-slaked lime to a lawn will destroy moss, but it will only be for a time. To free lawns of moss the cause must be removed, and that in most cases is poorness of soil; therefore, besides the lime, top-dress with rich compost, and the grasses and clover will outgrow the moss.

Plants for an Unheated House (*Stafford*).—We think you will not be able to keep out frost, and that you can only have hardy plants, or those that require but slight protection. The roof and side lights we presume are of glass. There will not be sufficient heat from the kitchen window and the door of the offices to keep the temperature from falling below 32°, and there are no plants which you could raise from seeds sown now that would flower at the time you name without having a temperature of 40° to 45°. The best use to which you could put such a house would be growing Vines, if you could provide a border partly inside and partly outside. You might dispose of that part of the house not occupied by the border for Vines as a rockery for Ferns. The Vines chosen should be those that succeed in an unheated house. If only the roof is of glass we should make the house a fernery, but until you decide what you wish for (for flowering plants you cannot have under present arrangements), we cannot advise. We shall be glad to assist you when you give us definite information of your intentions.

Cactus speciosus not Flowering (*Old Subscriber*).—We suppose the plants are in a temperature of 40° to 45° in winter, and not in need of potting. If they require a shift let them have it at once. Use a compost of two parts sandy fibrous loam, one part old cow dung, one part old lime rubbish or sandstone, one part charcoal in lumps, from the size of a pea to that of a hazel nut, and one part sharp sand. Drain well and pot firmly. Place the plants in a vinery with a temperature of 50° to 55° at night, water sparingly at the roots until they are growing freely, then water abundantly and maintain a moist atmosphere. When the growths are complete, as they will be by the time the Grapes in a house started early in March are changing colour, or about the middle of July, set the pots on slates in front of a south wall, and give no more water than is necessary to keep the stems plump. About the second or third week of September remove the plants to a light airy house from which frost is excluded, and only give enough water to keep them from shrivelling. When the buds begin to swell in spring water more freely, and

when the flowering is over return the plants to a house with a moderate temperature, such as a vinery. Secure a good growth, place them out of doors after it is made, and winter in a dry place safe from frost.

Sooty-Qua Cucumber—Stringing Peach Trees, &c. (*F. H. Jones*).—It should be sown in a hotbed of 70° to 75°, and grown like any other kind of Cucumber, only it requires more room. It may be grown in an ordinary Cucumber frame, and a light 6 feet by 3 feet 6 inches will suit one plant. We should be in no hurry to syringe the Peach trees in pots; we would let them be well in leaf, and let the fruit throw off the dying petals and calyx. Then you may begin syringing, but at this early season do it early in the day, and only on fine afternoons, so as to have the foliage dry before night. In dull weather once a-day in the morning will be sufficient. After the middle of May you may syringe as much as you like. On your pieces of ground sloping to the north-east you may have Potatoes, Cauliflowers, Peas, and every kind of summer vegetable. Do not depend on it for autumn, winter, or spring crops. Of course, Carrots, Beet, Parsnips, and similar subjects will answer, but it would be useless to grow such crops as Winter Spinach, early Peas, Beans, Cabbages for spring, or Broccoli for winter. The best plant for a hedge will be Thorn or Quick. If you keep it clean and prevent cattle feeding on the young shoots, it will make a good fence in a short time. Privet is a quicker-growing plant, but does not answer as a fence for cattle. Thorn is the cheapest, quickest-growing, and best for your purpose.

Tan Mixed with Lime for Plunging (*S. T.*).—There is no objection to using old tan mixed with a little lime for placing in a frame over a hotbed, if the lime does not form more than a tenth part of the whole. The cause of the stem of the Vine being partially decayed may be an injury the part has at some time received, as a bruise, cut, or gnawing by rats.

Insects—Leaf Soil (*Henri*).—No. 1 is green aphis, and may be destroyed by fumigation. Choose a calm evening, have the leaves dry, and after closing the house fill it with tobacco smoke. It may be necessary to fumigate again in the course of a few days, as one application cannot be expected to free the plants. In future fumigate when you first notice these insects. No. 2 are the grubs of the lesser Daddy Longlegs, or Tipula, and No. 3 is the same of a larger type. Both are very common in old turf. They may be driven from the turf by sprinkling it with quicklime and soot, the heap being turned over, and the soot and lime mixed with it in the process. A bushel of each to a cartload will be sufficient. It will improve the compost for plants. The vacant house with a tiled floor will be an excellent place for leaf soil or old manure, and will tend to keep it free of worms, and in better condition for mixing with compost. Leaf soil decays with age, and finally becomes vegetable soil. We do not consider it so useful after it is reduced to a very close mass. We like it about three parts decayed, or so that half its bulk will pass through a half-inch sieve.

Destroying Thrips and Scale (*Somerset*).—For the thrips fill the house densely with tobacco smoke every alternate night for a week, shutting-up closely with the foliage dry. Fumigation should be done in calm weather. Wash plants infested by scale with a solution of 4 ozs. of soft soap to the gallon of water, adding to every gallon a wine-glassful of spirits of turpentine. Apply this liquid with a sponge, and as hot as the hand can bear it, washing every part thoroughly, but taking care not to let it run down the stems to the roots of the plants. Repot the Camellias, and get their roots in a healthier condition.

Caterpillars, &c. (*T. Ward*).—Watering over the leaves with soot water &c., will not kill the caterpillars on the Cabbages. There is nothing so effectual as hand-picking, and a woman will clear a large plantation in a day. Dusting with fresh white hellebore powder will kill caterpillars, but the powder is poisonous and must be washed off. House sewage is not too powerful a manure for Cabbages, Rhubarb, or Asparagus. It would make Potatoes produce more leaves than tubers. Quicklime will not kill wireworms.

POULTRY, BEE, AND PIGEON CHRONICLE.

LIGHT BRAHMA POOTRAS.

I have read with much interest Mr. Wright's remarks in your Journal regarding Light Brahmas, and although at present the Dark variety are my more especial favourites, still could I command that *sine quâ non* for all birds of delicate plumage, a grass run and pure atmosphere, there are none that I would more readily direct my attention to breeding than Light Brahmas. My lot being cast for a time in that small corner of the Dominion of Canada, Nova Scotia, where the breed originally imported from the States appears to be an especial favourite, I have had some opportunity of observing their superiority over birds of the same class in England. They are almost as large as, and more resemble in shape and carriage their Dark brethren, and have a style rarely seen at our best shows at home. A gentleman, a great lover of the breed, was showing me over his yard a few days since, when I remarked a cock that I think would almost come up to Mr. Wright's standard to be perpetuated. His plumage was silvery white, without the slightest yellow tinge, the clear dark pencilling of the neck hackle contrasting sharply with it, the flowing saddle hackle also delicately striped with black, throwing out in strong relief the spotless plumage of this grand "King of the Roost." He with his wide, short, profusely feathered shanks, soft velvety hocks, broad massive body, and majestic bearing, looked a fitting mate for the harem by which he was surrounded, and formed a picture it would gladden the heart of many a Light Brahma breeder at home to witness. Perfection is rare, so I am compelled to confess that this bird had a shade too much tail, and that the tail in question had a trifle too much of a tendency to the Cochin type, which unfortunately appears to be the aim of some of our best breeders of the Dark variety, a thing to be regretted, as it does not suit the breed, giving them with their proud carriage a somewhat badly finished-off and stumpy appearance. But it was a slight defect only in the bird I mention, and owing to his other faultless proportions probably many would have said that I was unduly picking him to pieces.

The poultry fancy is at present only in its infancy in Nova Scotia, and it is uncertain whether it will ever grow to ripe years of fulness. A few real poultry lovers are doing their utmost to encourage the desire for pure breeds, and from the increased demands for eggs I hope that in course of time the fancy may become more generally developed throughout Acadia, and that Halifax and some of the larger towns may proudly boast their annual poultry show.

Black Spanish are here next in favour to Light Brahmas, and strange to say, notwithstanding the severity of the climate, they appear to thrive well, and lay during the winter even in houses where artificial warmth is not resorted to.

Dark Brahmas are seen in small numbers, but not generally, and in the yards of the farmer class rarely, if ever beheld, whereas the Light variety are common, the oftener with signs of a cross than pure. Still in driving through the country I have met with Light Brahmas that would not disgrace the yard of a fancier, and I would recommend any lover of the breed to import fresh blood from this side of the Atlantic, where the true type of the Light Brahma appears to be better understood, and more carefully bred up to than it is at present in the old world. I may have more to say upon the subject, and other poultry matters.—F. S. F.

[Do so.—Eds.]

BLACK BANTAMS.

That Black Bantams have equal right with several other breeds of poultry (having allotted to them separate classes) to a distinct and separate class for themselves, I think all will admit, That in the Any other variety class duriug the last season, taking the average, Black Bantams mustered in the greatest number, there cannot be a doubt. That at some of our shows, and good ones too, where Bantams other than Game have to compete in a miscellaneous class, in which are some five or six pens of Black Bantams, and perhaps three or four of them of sufficient merit to have prizes awarded them had they a distinct class, it is anything but encouraging to the owners to see their birds passed over with perhaps a highly commended, a third, or a second prize, and have placed before them a pen of Sebrights or a pen of Pekins, varieties which are not so hardy nor so prolific, and good specimens of which are seldom seen, and still more seldom reared in this country. I ask, Are the more hardy, more prolific, and consequently more profitable Black Bantams to be treated in future with such coldness as has been their lot up to the present time? If so, Black Bantams must fall off in numbers, and perceptibly too, at our poultry shows where they are treated as a miscellaneous variety.

It is, therefore, with a view of giving this matter a little more publicity that I ask you to kindly insert in the next issue of the Journal the enclosed circular, which has been drawn up and signed by some of the principal exhibitors of Black Bantams, for the purpose of presenting to the secretaries and committees of our poultry shows.—W. Augustus Taylor.

To the Secretary of the ———

We, the undersigned, solicit your kind attention to the following:—

Exhibitors generally beside ourselves have long felt the unsatisfactory state of the "Any other variety class of Bantams," and the desirability of having a separate class for Black Bantams, which now muster strongly at our Shows. We hope you will consider our request and at your Poultry Exhibitions in future make a separate class for Black Bantams, and we, whose names are at foot, honestly promise to give you all the support we possibly can.—H. Beldon, H. Draycott, W. A. Taylor, R. H. Ashton, J. Walker, J. Bloodworth, C. Reed, C. Sedgwick, W. H. Robinson.

FOWLS FOR PROFIT, AND AS A MEANS OF SUBSISTENCE.—No. 3.

Food.—Poultry having a run should be fed twice a-day in the summer, and three times a-day in the winter. If they are kept in confinement three times a-day will not be too often to supply them with food. An unlimited amount of green food, as fresh-gathered lettuces, should be always within their reach. When fowls are confined, I always tie up a cabbage, or bundle of green food to the roof or ceiling of the hen house or shed, just high enough to enable the hens to reach it with a slight jump; this at once gives exercise and amusement to them.

Supposing the poultry yard should number fifty hens; their morning meal should consist of 5 lbs. of boiled potatoes, mixed with 1 lb. of bran or sharps; this should be well amalgamated, it should fall asunder in little dry lumps. This food may be varied by substituting rice, boiled or cooked in the oven with as much water as will well cover it. A swede turnip, a mangold wurtzel, prepared in the same way as the potatoes, is also an excellent change of diet. During severe weather, long-continued frosts, or in damp inclement mornings, a little cayenne pepper should be mixed with the morning meal, in the propor-

tion of one teaspoonful to twenty-five hens. They must also at this their first meal have a small portion of liver, horse-flesh if obtainable, sheep's pluck, &c.; indeed the refuse of a butcher's slaughter-house contains the very best winter food for poultry. It may be given raw, but in moderate quantities, and must be cut down into small pieces. If too much is given it will create an unnatural desire in the hens for such food, and they will denude each other of their feathers, swallowing them entire, to the great disfigurement of the stock. The midday and evening meal must consist of a variation of Indian corn, barley, small wheat, and buckwheat.

Half a bushel of grain, taking one week against the other, will be amply sufficient for fifty fowls for that time. The rice may be bought wholesale at about 8s. per cwt. I have bought it at 6s. 6*d*. The meat may be had at a trifling cost from the butcher who supplies the table. The cottager who makes his weekly purchase at the same place will always find himself liberally supplied for the outlay of a few pence. No fowl fed in this way will cost more than 1*d*. per week, and will be kept in fine condition, and in full egg-producing powers.

Fresh water is indispensable, and should be given in a fountain, as it will then always be perfectly clean.

The young chicks must be fed abundantly. I would highly recommend the use of the "food protector," it being an admirable mode of keeping a constant supply of food always ready for their use. This useful little appendage is made by constructing a frame of narrow wooden laths, or of wire netting. The wide mesh is the best, as it admits more light; the length may be about 4 feet, and the width 2 feet at the base, with an aperture at either end only large enough to admit the chickens. The top must be covered with roofing felt. There should be several of these food protectors in use where many chickens are reared; they can then be fed often, and with better food than the hens.

I believe the great secret of success in rearing chickens is to feed *often* in small quantities. The housewife should know exactly when her young charges have had sufficient. During the first week of a chicken's life its food should be hard-boiled egg minced, and mixed with sharps, or oatmeal, and a little grain. Small wheat is the best. One egg is sufficient for fifteen chickens, never forgetting an ample supply of green food. Do not allow the chickens to leave the hatching house for a few days unless the weather is very warm and fine.

When fattening fowls I use an equal mixture of barleymeal and oatmeal. When this last cannot be obtained except at a high price, Indian meal may be substituted. They should be mixed with skimmed milk if obtainable. Ten days are a sufficient time for fattening, for all fowls if intended to pay should—indeed *must*—be always kept in fine condition, and, therefore, will not require long to fatten. Some authorities do not advise water to be given after fowls are cooped for fattening, but I always allow them to have a drink once a-day. Where hens are confined, and where they have not access to lime or mortar, &c., burnt oyster shells are an excellent material to give them. Put them into the fire for about half an hour, and when cold they will break easily, and will be much relished by the fowls. Without this, however well fed in other respects, no hen can lay from lack of material wherewith to make the shell of the egg. Chalk is also good if broken down and mixed with their food.—Vincent Skinner.

DRAGOON PIGEONS.

In your issue of March 7th we find remarks upon the above subject from a correspondent who signs himself "Carrier," and in addition to his observations upon the colour of Silver Dragoons' bars (in reply to Mr. Allsop), he gives your readers the benefit of his experience upon Dragoons generally, and very kindly promises to "try to do it thoroughly." We trust he will do so, for the Dragoon is an admirable kind of Pigeon, though somewhat neglected, owing, no doubt, to the differences of opinion which exist as to the points of excellence at which to aim.

Now as "Carrier" promises shortly to make his subject complete, we at present refrain from any observations, but in order that we, in common with our fellow fanciers, may know the amount of importance we should attach to such views, and also to whom we should be grateful, we would suggest that he, too, like the "bold bird" of which he writes, ought to sign his real name, and then we will take part in the controversy; but having tried fairly to meet a "Carrier" on a former occasion in a contemporary paper, we are not again disposed to direct our observations to anonymous writers.—Birmingham Columbarian Society.—J. W. Ludlow, *Secretary*.

Carriers.—We had the pleasure, on the 11th, of inspecting a private exhibition of Carrier Pigeons, the property of a veteran fancier, Mr. William Siddons, sen., Birmingham, which was held in compliance with a request from a number of admirers of that noble variety. The display was made in the large club-room of the Victoria Inn, Lichfield Road, Aston, the residence of Mr. John Siddons, and a greater peristeronic treat in its way has never been placed before Birmingham fanciers. It comprised about fifty birds, in fine condition—Blacks, Duns, Blues, and Silvers—all of the highest quality, and many of surpassing excellence, in length of face, eye and nose wattle, colour, and contour; in fact, the collection as a whole presented the nearest approach to what has been termed the classical style of Carrier, cultivated by our predecessors, than anything which has been seen for years, and its value was estimated by several competent authorities at upwards of £300. The coarse heavy bird now so much in vogue, and which is the result of breeding for size, was absent, and in its place was the lighter and more graceful bird, with elegant neck, well-defined shoulders, plenty of length and strength, well-developed wattle, and the good stand-up carriage of the true old English Carrier. Much of this was owing, no doubt, to the time Mr. Siddons has been a breeder—now reaching to upwards of half a century—together with the combined exertions of his sons, who naturally have followed in his steps. Now, in a green old age, Mr. Siddons is still as ardent a lover of his feathered favourites as ever; and not the least of the attractions of the gathering on Monday was a chat with him about their characteristics fifty years ago, when all fancy Pigeons are supposed, though we imagine erroneously, to have been better than those of the present day. The Exhibition was in every way a most gratifying one, and was numerously attended throughout the afternoon and evening by visitors, who expressed their unqualified satisfaction.—(*Midland Counties Herald*.)

WAITING FOR THE JUDGE AT A CANARY SHOW.

The Bradford Ornithological Society held its first exhibition of birds on February 24th, at the Miller's Arms, Miller Gate, Bradford. On entering the house (writes the reporter of the *Bradford Observer*), we encountered some members of the Ornithological Committee in the passage, from whom we received the intelligence that Mr. Gough, of Huddersfield, who was the Judge, was then upstairs examining and passing judgment upon the feathered prisoners. It was then two o'clock, and the exhibition was advertised to open at one. We made ourselves master of a printed catalogue, and went and sat in the bar, where we were told there was some "respectable" company. The bar was full, and the clean wood tables presented a formidable array of glasses of ale. From adjoining rooms came the sounds of rough mirth and heavy drinking; but the bar customers were, perhaps, a trifle less boisterous. We sat next to three boon companions, who had evidently called in just when leaving work at an adjaceut brewery. They were slightly under the influence of alcohol, and spent most of their time in chaffing each other about "pennorths o' bacca" and drinking each other's ale. One of them had a fine-looking dog, with what he called "a bit o' masty" in it, lying at his feet. He offered to sell the animal for a sovereign, and explained that he had found it some days previously, and had been so honest as to advertise it. The rest of the bar company were bird fanciers, exhibitors, and dealers. Complaints against the dilatoriness of the judge were frequently uttered, one knowing individual asserting that he himself would undertake to pass judgment on five hundred birds in half an hour. Coming across to our end of the room, this clever gentleman proceeded to deliver himself of a piece of wisdom, which, if not original, was nevertheless good, though we failed to see its appropriateness at that moment. "If yon would noh-but do to other fowk as ye'd like to be done by there'd be no gammon about it; but when a man says one o'clock and means five, he isn't a man." With that he sat down, and a country woman sitting near the fire asked her companion if they remembered Mr. So-and-so being the judge at such a place. They all remembered the fact, and each in his turn described the judge's manner of judging, which must have been very penetrative. "That's t' first and that's t' second, and that's highly commended," spoken as fast as possible, was represented as this famous judge's manner.

Then they began relating their bird experiences, one of them telling a story of having once had a fine Canary, whose plumage became suddenly deficient, just as he was about to obtain a profitable sale. To remedy this he had tried to introduce a few brilliaut feathers into the bird's body, but it died under the operation. The clever individual before referred to shuffled about uneasily while this anecdote was being related, and uttered a few expletives to himself. His neighbours then began talking about a Persian dye which had "just come up," and otherwise hinted at various bird-improving processes which had recently come into use. The clever one was evidently unable to stand this torturing conversation, from some reason or other, so he jumped to his feet in a rage and walked to our end of the bar again, and gave utterance to words of wrath. "If a man's a man, why doesn't he say so? To [the infernal regions] with such wark. I wodd'nt care if it were my own brother!" He

then sat down in sulkiness, amidst the laughter of the company, and called for another glass of ale.

It was not until three o'clock that it was announced that the judge had completed his business, and then there was a general rush up a narrow stone staircase into a moderate-sized bedroom on the next floor, where the exhibition was held. Down the centre of the room there was a row of narrow benches arranged, which row was filled with cages, and another row of cages occupied the side of the wall opposite the windows. There was scarcely window-space enough for the ingress of light, so that we were obliged to strain our eyes in order to gain anything like a minute view of the birds; but the little songsters chanted away one against another as merrily as if they had been carolling in front of a sunny meadow. There was a great stir amongst the exhibitors, who pressed eagerly forward to learn whether their feathered pets had come in for prizes or not. We observed one exhibitor walk up to the bird he owned, and turn angrily away when he perceived that it had not got anything but a high commendation. His eye then sought for the winner, and when he saw the favoured bird, he exclaimed, "Mine's a long chalk better nor that onny day!" There were one hundred and twenty-two entries.

LADY GWYDYR'S POULTRY ESTABLISHMENT.—No. 2.

The working yard appears to have been formerly the place usually found attached to farmhouses, where cattle are confined and fed during the winter. Round three sides of this yard nearly thirty runs and houses of various shapes and sizes have been made, some with a grass plot in front, others with only a small sandy run. Here many of the chickens are kept as they get troublesome and quarrelsome, also some of the crack birds during the breeding season, and for exhibition. The range of

Stoke Park—The Egg-Room.

open sheds, previously used to shelter the cattle, allows of a great many of these runs being nearly half covered from the weather so as to protect the birds' plumage from the sun and wet, two things always to be remembered in breeding or keeping fowls for exhibition.

Amongst the many other houses and runs to be found built around the working yard, one of the largest and most useful is the chicken nursery, a large, lofty, very light and airy building, about 70 feet long and 25 feet wide. Skylights are let into the roof, and windows round the sides, for the purpose of allowing the warm rays of the sun to enter the interior. The entrance is at one end through two large doors, which when shut nearly close the whole of that end of the building. Sand several inches deep covers the bottom, the walls are frequently limewashed, and the whole place is kept scrupulously clean. Here the chickens are confined when the weather is severe or very wet, and the advantages of such a large covered space can be easily imagined, affording, as it does, protection to the young birds from frosts, the cold dry winds, and heavy rains which we frequently experience early in spring. At the same time they always have a capital dry warm run, plenty of exercise, amusement, and something to occupy them in scratching for their corn in the soft sandy earth. When the weather is favourable and the chickens of a sufficient strength they are allowed to roam at large over the meadows and amongst the woods, but previous to this the hens are confined in coops, distributed in various places. These coops are put under a slanting tin-roofed covering, three sides being open and the roof touching the ground, encloses the fourth side, the front facing the south. Mr. Wragg tells us he is always very fortunate in rearing chickens under those places. The tin roof is heated by the sun, and the birds can run about amongst the grass and pick up in-

aects, and when cold or tired can get under the hen. As the day advances and becomes warmer and the dew is off the grass the coops are removed, and away goes the hen and her young brood for an hour or two's ramble.

The houses used for sitting hens have large wooden troughs running round the sides, which are put on the ground, and divided into compartments only large enough to admit of a single hen. In one of these places to give room for more hens we noticed a trough fixed against the wall about 3 feet from the ground, and the manager told us he found the eggs hatch as well there as in those on the ground. Accommodation is provided at one time for between forty and fifty hens while sitting. As the eggs hatch, the young chicks are taken away until all are out, when they are given to the hen, who is kept a day or two in a place near at hand; after this they are sent (weather permitting) to one of the above-mentioned tin-roofed houses, where they are regularly fed at certain hours during the day, not too frequently, but at such times as they become hungry. Their first meal consists of ground oats, barleymeal, and middlings mixed together with boiled water, corn is given to them the rest of the day. At night they are all housed, and between nine and ten they get another meal before finally going to rest.

The egg-room, of the interior of which we give a view, is a very curious sight. A counter is fixed round two sides of it, which is divided into compartments, each labelled, as may be seen, for the eggs of as many different varieties of fowls as are kept. When the eggs are collected and brought into this room they are placed in their proper division in sand, the thin end downwards, just deep enough to keep them erect, and very odd it looks to see several hundreds of eggs of various shades of colour and sizes, each distinctly described as coming from such and such a yard, and all systematically arranged. Models of birds are seen in different places, while on the walls are nailed some of the prize cards, stating the honours won by birds at exhibitions where they have competed, and, as may be supposed, these are very numerous, and show what can be done by any well regulated and appointed establishment. The floor is made of tessellated tiles, and the exterior of the windows is protected from the sun by perforated zinc shades, which keep the inside very cool and well ventilated. Under the oval window is the basket used in collecting the eggs, and this is likewise made in several divisions, so as to keep each variety or those from any particular birds distinct.

It is very pleasing to notice the complete method and order adopted in every compartment, and unless such was the case, in a large establishment like this the confusion which would prevail would prove entirely ruinous to all attempts at breeding, exhibiting, and often disappointment to the purchasers of eggs.

WHAT DRONES DO.

It has been almost universally believed by apiarians of modern times, that the uses and functions of drones were entirely confined to the purpose of the propagation of the race, and that they were of little or no other value in the internal economy of the hive. The cause of so many hundreds or thousands of drones being present in every strong colony, has usually been supposed to be owing to the importance or necessity of young queens on their wedding flight having little difficulty in meeting the object of their desires. The fact that the drones are ruthlessly exterminated when the inmates of a hive have given up all idea of swarming, and appear to have arrived at the conclusion that the services of the drones will be no longer required, as no young queens will be hatched out, has certainly conduced to establish the belief that they are of no value in the community, except for the impregnation of the mother bees. But it appears that we have all been wrong. Mr. H. Head, writing in the *Rural New-Yorker*, announces that he has made the discovery that, without the presence of drones within the hive, good honey cannot be stored. It is certainly amusing how some persons jump at a conclusion, and then endeavour to find or twist evidence to prove its truth. If Mr. Head's logic were sound, how must we account for so much good and well-keeping honey being collected late in the season, after the destruction of the drones? He may, to bear out the conclusions at which he has arrived, deny that any sound honey can be stored in the autumn after the destruction of the male portion of the community. We fearlessly assert that the contrary is the fact. How often do we find the bees, in the middle of a cold wet summer, eagerly slaughtering all their drones, after which a genial change in the weather takes place, the secretion of honey becomes abundant, and the apiarian is enabled to appropriate a portion of the stores admirable in every respect as to quality. We do not think the opinion advanced by Mr. Head worth much effort in order to obtain its refutation, but, as the arguments he has adduced may amuse our readers, we append almost the entire article. He commences by stating that the question is often asked,

How is the thin watery honey, as gathered by the bee, reduced to good solid honey? which, as far as my reading extends, still remains unanswered. I purpose, therefore, very briefly to say just how this is done.

It is, strange as it may seem, done by that lady's man, that reputed gentleman loafer, the drone bee. I had kept bees a long time before I found this out, and had been quite at a loss to see in this industrious family how such laziness was tolerated in a portion of its members. But I now see that this portion of the colony is as important in the general economy of the bee as any other portion of the household, and will venture to lay down this general proposition:—That in the absence of the drone bee a good solid article of honey cannot be made. Although it may seem to detract something from this gentleman bee's credit when I tell you he does it simply to gratify his appetite, still for truth's sake it mu be said that he cannot live and prosper on a good finished article of honey, but that his nature is such as to require that thin portion of the honey always at the surface when the cells are filling. He seems never to touch the patton or bee-bread.

Having thus stated my position, you will of course ask my evidence. I shall in the first place introduce the economy of the honey bee. In this locality, from the 1st to the middle of June may be reckoned the commencement of the season for laying-in honey by the colony for anything more than immediate use; and right in here the drone brood is matured and brought out. From about the middle of August to the middle of September, the honey-gathering season being over, the drones are brought out and executed by the worker bees, the business of the drone for the season being accomplished. It is also frequently the case when you have a cold wet June, and no honey is being collected, that the drones that are hatched at that time are all killed, there being no use for them.

As a second witness I will introduce the drone himself in his official capacity—not that single rowdy off high in air with his queen in a capacity not to be mentioned, but the honest stay-at-home drone, as a refiner and purifier of honey for the use of man. Go with me to a hive, say in July, that has swarmed out rather too clear for its own good, but is full of honey, and the bees are filling the glass boxes. Lift off the cover sufficiently to see the full side of a box not yet capped. Wait until the first disturbance of the light is over, and you will find a large part of the bees there are drones, and will readily see one lapping his long tongue over the top of one cell after another of the uncapped cells, until he will dip into a dozen in as many minutes. Every fine day in the flush of the honey season, from 11 o'clock A.M. until 2 o'clock P.M., you will find the air alive with drones. Watch one as he leaves the hive. By the time he is a few rods from the hive in the air you will see him discharge the accumulated waste of the rectifier. Go where it fell on a clean board, or on cloths hung out to dry, and you will find only an almost colourless watery substance. Go now and stand by the hive as one comes out, and crush him; nothing but the same watery substance appears. Crush one as he returns to the hive, and he seems nothing but an empty sack. When outside of the hive, except at swarming, he never alights; his business is all in the hive, and carrying out and scattering the water that would, in his absence, spoil the honey.

One more witness, and I shall sum up this case. I will take a small second or third swarm, that will make only 12 or 14 lbs. of honey. Such a swarm when it comes on will often be in the air, before alighting, twice or three times as long as a good first swarm (all swarming except first swarms, being rather forced transactions), and if there were any drones left in the old hive with the swarm they will have returned to the old hive before the swarm has lit. I have taken up such a hive, and on a thorough examination of the dead have failed to find a single drone bee. Such a hive will cap very little if any of their honey-cells; and if you set such honey in the open air in a moderately warm room, it will sour in two weeks, so as to be nearly valueless. The rectifier was not in operation in such a hive.

OUR LETTER BOX.

Fakenham Poultry Show.—I was surprised to see it stated in your last Journal that I claimed the cup Brown Red pen of Game fowls at the above Show. This statement being incorrect, I shall be obliged by your contradicting it.—Samuel Matthew, *Stowmarket*.

Black Bantams' Eggs (*A Constant Reader*).—We cannot recommend vendors. We should write to some who have taken prizes, and ask if they would sell a sitting.

Scurfy Legs (*W. T.*).—Scurfiness is not infectious, nor is it peculiar to Brahmas. Rub the legs with sulphur ointment.

Egg-producers (*M. A.*).—Golden-spangled Hamburgh and Spanish pullets will suit you. No male bird will be needed. They rarely sit.

GAME BANTAMS (*W. Adams*).—We are glad you have taken more prizes, &c., than any other breeder in the eastern counties. You had better challenge the party you name to exhibit as you propose. It would be a good advertisement even for the defeated competitor.

LICE ON FOWLS (*F. W.*).—These vermin in poultry are effectually destroyed by thoroughly dusting flowers of sulphur down to the roots of the feathers twice or thrice, with the interval of a day between each two dustings. The best course of procedure, however, when you detect lice in your chickens, is to give them immediate relief by putting a little sweet oil with the finger on the poll of the head and under each wing, then let them have a dust bath. Thoroughly dry coal ashes are best for this bath, and mix a pound of flowers of sulphur with the ashes.

LIGHT BRAHMAS' FEATHERS (*E. B.*).—We cannot imagine that pure Light Brahma fowls can have such feathers as those you enclosed to us, and we would neither keep nor breed from such birds. There must be a cross of Buff Cochin. The only defective or faulty feathering to which these birds are subject is peculiling on the back and in parts of the body that should be quite black. This may occur among pure birds, but buff feathers cannot.

DORKING HEN'S COMB—PLACE FOR SITTING HENS (*R. E. H.*).—In these days poultry books are so numerous, and many of them so correct, that we must refer our readers to them when they want full descriptions. It is quite correct for a Dorking hen's comb to fall over. When a hen's comb is upright there is mischief brewing. Sitting hens should be confined, and few things are better for the purpose than butter-tubs cut in half with the bottoms knocked out, because the eggs should always be on the ground. The top should be covered over with something affording plenty of ventilation, but at the same time having strength enough to confine the hen. They should be taken off every morning at the same hour to feed, drink, and freshen themselves. It must not be left to their own discretion, as they leave and come back, and they are worried by the non-broody fowls. Hens always prefer to lay in a sitting hen's nest.

BLACK HAMBURGHS *versus* BRAHMAS—PROPORTION OF DUCKS TO DRAKE (*H. S.*).—The Black are as good domestic fowls as the Hamburghs of any other colour, but we do not consider them as useful as Brahmas—for instance, in sitting and rearing. They are not so large, nor do they grow as fast. They are not so hardy. We always consider a proper run to be, a drake and three Ducks. Many put more, but our own experience is not favourable to it. It does not always follow because you have more eggs that you have more young.

YOUNG COCK'S SPURS (*Black Red*).—The cock would not be disqualified but it would be a disadvantage if his spurs were cut off. If it affects his walk, or if they scratch his legs in walking, they must be shortened. In a Game fowl shown as an adult, we see no objection to scraping or filing the spurs. Either method is preferable to cutting.

CHICKENS CRAMPED (*J. H.*).—There is no doubt the cramp was induced by the stone floor. Chickens should never be put on stone, wood, tile, or brick. They are better anywhere out of doors. We have ours on the grass, and they do not suffer, but we fasten a board in front so that they may not get draggled in the chilly white grass in the morning. It is natural for fowls to be on the earth, and they must be there if they are to be healthy. Add some bread and milk to the diet.

MATING FOR SEXES (*J. H. J.*).—You will never find any work to teach you to mate birds for sexes. It is a work of experience. If you put two brothers with six sisters in two separate pens, it is fair to suppose you will breed alike in both pens. By brothers and sisters we do not mean that cocks and pullets should be brothers and sisters. If they were, they would, of course, produce the same results. If you have been fancier long enough, you must breed your sexes separately by mating according to that you wish to produce. We have always laughed at the idea of choosing the sexes of eggs, but we believe the earliest eggs will produce more cocks than the later, and they will be more like the cock than the pullet. We never give a positive opinion, nor do we *now*; but we are *sure* of it.

TURBIT HEN GOING LIGHT, &c. (*Captain*).—In giving your bird a castor-oil capsule every night, you did the worst thing possible, as castor oil is lowering and weakening. It is a cod-liver-oil capsule which you should have given, and which might have done her much good. We do not know what you mean by the next question, "What is the best medicine to be given to Pigeons failing to bring off young?" If the eggs every time are clear your birds are too old to breed. If the Pigeons do not feed their young well, put them under commoner sorts. Many high-bred birds will not raise their young, and require you to keep feeders, especially Almond Tumblers and Pouters.

DRAGOON NOT DRAGON (*Reader*).—You and your brother lads, o'er twenty years ago, may have bred Pigeons and called them "Dragons;" but Moore, who wrote on Pigeons more than 130 years ago, spells the name of the variety "Dragoon."

PORTRAITS OF PIGEONS (*Alpha and Others*).—The delay is not our fault. We have the portraits of the Ice and the Maegie Pigeons, and we are waiting for relative notes from the Birmingham Columbarian Society. At the same time it is but just to add, that the Society's delay arises chiefly from anxiety to be accurate.

WHEN TO PUT ON SUPERS (*Novice, Kent*).—We do not advise supers to be given until the stocks show undoubted signs of possessing a strong population. We generally find that the bees take more readily to supers, and proceed more vigorously to work in them, if the right time is chosen. This will of course vary both as to the district, and to the more or less advanced state of the season. From the first week in April to the end of May seems a wide range; but any time during that period you may choose, according to the prosperity of your colonies and the nature of the weather. A little judgment is requisite in deciding on the right time, and if you should be in doubt, you had better err on the side of giving additional room too early than too late, but at any rate you need not think of doing so until next month.

WOODEN HIVES (*B. Wilson*).—Hives 14 inches square and 8 inches deep, would be better than your proposed size, 12 by 12, and 10 inches deep. We are sorry to have mislaid your note.

HIVE (*W. E. S.*).—We consider the simplest, cheapest, and best hive for a beginner is a plain box of inch deal, 14 inches square inside measure and 8 inches deep, with a window at the back. It should have a 2-inch hole at the top over which to place a super for honey at the proper season. If you order "Bee-Keeping for the Many," 4*d.*, at the office of this paper (post free for 5*d.*), you will get all needful instructions. Undoubtedly the best way to begin is to buy a stock of last year now, or during the next six weeks, if you can obtain one, because you will be likely to get one or more swarms out of it, and perhaps some honey. Do not buy a hive within two miles of your residence, for fear of losing many bees.

COMMENCING BEE-KEEPING (*Goddess*).—A swarm is best bought in May, about the middle of the month, but any time before the 10th of June will do in ordinary years. The usual price of a swarm varies from 10*s.* to 20*s.* according to circumstances. A plain hive of straw or wood will answer well. Payne's "Bee-Keeping for the Many" can be had free by post from our office if you enclose five postage stamps with your address.

METEOROLOGICAL OBSERVATIONS,

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude 111 feet.

DATE.	A.M.					IN THE DAY.				
1872. March	Barometer at 32° and Sea Level.	Hygrometer. Dry.	Hygrometer. Wet.	Direction of Wind.	Temp. of Soil at 1 ft.	Shade Temperature. Max.	Shade Temperature. Min.	Radiation Temperature. In sun.	Radiation Temperature. On grass	Rain.
	Inches	deg.	deg.			deg.	deg.	deg.	deg.	In.
We. 13	30.091	41.7	41.5	W.S.W.	Gauge out of order.	66.1	37.2	31.6	32.3	—
Th. 14	29.511	47.5	44.7	S.		54.2	36.2	35.3	32.6	—
Fri. 15	29.683	47.6	45.3	N.E.		56.8	36.8	31.0	31.5	—
Sat. 16	29.949	51.8	49.1	W.		58.8	44.2	37.3	33.1	—
Sun. 17	30.030	52.2	49.5	S.W.		55.4	43.5	31.6	41.2	0.220
Mo. 18	29.907	47.3	43.1	N.W.		54.1	33.8	33.1	36.1	0.078
Tu. 19	29.318	45.8	42.4	N.W.		50.1	42.5	38.2	39.5	—
Means	29.865	47.6	45.1			65.0	40.7	89.2	36.6	0.298

REMARKS.

13th.—A fine bright day and starlight night, not so cold as yesterday, the wind being S.W.

14th.—Fine morning to early afternoon, then cloudy, slight shower at 9 P.M., and again at midnight.

15th.—Very fine from sunrise to noon, after which time, though the sun shone occasionally, the beauty of the day was gone, and about 5 P.M. there was such a dark haze that it seemed at least an hour later in the day.

16th.—A fine day throughout.

17th.—Fair, though cloudy till 8 P.M., then a sharp short shower, and again in the night.

18th.—Cold and winterly, occasional sunshine and showers.

19th.—Generally overcast with short gleams of sunshine, several slight showers of hail between noon and 6 P.M.

The somewhat higher temperature this week arises principally from the greater amount of cloud at night, whereby the nocturnal radiation has been considerably diminished.—G. J. SYMONS.

COVENT GARDEN MARKET.—MARCH 20.

VERY little alteration has taken place either in supply or demand during the week. Prices remain much the same.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples ..... ½ sieve	2 0	to 4 0	Melons ..... each	0 0	to 0 0
Apricots ..... doz.	0 0	0 0	Mulberries ..... lb.	0 0	0 0
Cherries ..... lb.	0 0	0 0	Nectarines ..... doz.	0 0	0 0
Chestnuts ..... bush.	10 0	20 0	Oranges ..... ℔100	4 0	10 0
Currants ..... ½ sieve	0 0	0 0	Pears, kitchen ..... doz.	2 0	4 0
Black ..... do.	0 0	0 0	dessert ..... doz.	3 0	8 0
Figs ..... doz.	0 0	0 0	Pine Apples ..... lb.	6 0	10 0
Filberts ..... lb.	0 6	1 0	Quinces ..... doz.	0 0	0 0
Cobs ..... lb.	0 6	1 0	Raspberries ..... lb.	0 0	0 0
Grapes, Hothouse ..... lb.	10 0	15 0	Strawberries ..... ½ oz.	2 0	4 0
Gooseberries ..... quart	0 0	0 0	Walnuts ..... bushel	10 0	25 0
Lemons ..... ℔100	7 0	10 0	ditto ..... ℔103	1 0	2 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes ..... doz.	4 0	to 6 0	Leeks ..... bunch	0 2	to 0 6
Asparagus ..... ℔100.	6 0	10 0	Lettuce ..... doz.	1 0	2 0
Beans, Kidney .... per 100	2 0	4 0	Mushrooms ..... pottle	1 0	2 0
Broad ..... bushel	0 0	0 0	Mustard & Cress .. punnet	0 2	0 4
Beet, Red ..... doz.	1 0	3 0	Onions ..... bushel	2 0	4 0
Broccoli ..... bundle	0 3	1 6	pickling ..... qasrt	0 6	0 0
Brussels Sprouts .. ½ sieve	1 6	3 0	Parsley per doz. bunches	3 0	4 0
Cabbage ..... doz.	1 0	1 6	Parsnips ..... doz.	0 9	1 0
Capsicums ..... ℔100	0 0	0 0	Peas ..... quart	0 6	0 0
Carrots ..... bunch	0 6	0 0	Potatoes ..... bushel	2 0	3 0
Cauliflower ..... doz.	2 0	5 0	Kidney ..... do.	3 0	5 0
Celery ..... bundle	1 6	2 0	Radishes .. doz. bunches	0 6	1 6
Coleworts .. doz. bunches	1 0	3 0	Rhubarb ..... bundle	2 3	1 0
Cucumbers ..... each	1 0	3 0	Savoys ..... doz.	0 9	1 0
pickling ..... doz.	0 0	0 0	Sea-kale ..... basket	1 0	2 0
Endive ..... doz.	2 0	0 0	Shallots ..... lb.	0 4	0 6
Fennel ..... bunch	0 3	0 0	Spinach ..... bushel	3 0	4 0
Garlic ..... lb.	0 2	0 0	Tomatoes ..... doz.	0 0	0 0
Herbs ..... bunch	0 3	0 0	Turnips ..... bunch	0 3	0 9
Horseradish ..... bundle	3 0	4 0	Vegetable Marrows .. doz.	0 0	0 0

POULTRY MARKET.—MARCH 20.

THE scarce season is drawing on, and prices are affected by it. They are rising, but we must warn our readers, for the hundredth time, we quote only good if not the best poultry.

	s. d.	s. d.		s. d.	s. d.
Large Fowls	4 0	to 4 6	Partridges	0 0	to 0 0
Smaller ditto	3 6	4 0	Hares	0 0	0 0
Chickens	3 0	3 6	Rabbits	1 6	1 9
Green Geese	8 0	9 0	Wild ditto	0 9	0 10
Ducklings	6 0	6 6	Pigeons	0 10	1 8
Guinea Fowl	3 6	4 0	Pheasants	0 0	0 0

WEEKLY CALENDAR.

Day of Month	Day of Week	MARCH 28—APRIL 3, 1872.	Average Temperature near London.			Rain in 43 years.	Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	Days.	m. h.	m. h.	m. h.	m. h.	Days.	m. s.	
28	Th		53.0	34.0	43.5	17	44 af 5	25 af 6	57af 10	20 7	19	5 1	88
29	F	Good Friday.	53.7	33.4	43.6	13	42 5	26 6	morn.	45 7	20	4 42	89
30	S		53.7	34.3	44.0	19	40 5	28 6	19 0	19 8	21	4 24	90
31	Sun	Easter Sunday.	55.3	33.9	44.6	18	37 5	30 6	33 1	4 9	22	4 5	91
1	M	Easter Monday.	55.0	34.4	44.7	21	36 5	33 6	43 2	3 10	(	3 47	92
2	Tu	Easter Tuesday.	57.8	36.7	46.9	21	34 5	35 6	35 3	16 11	24	3 29	93
3	W	Royal Horticultural Society, Fruit, Floral, and [General Meeting.	57.1	36.7	46.4	20	32 5	37 6	14 4	after.	25	3 11	94

From observations taken near London during forty-three years, the average day temperature of the week is 55.1°; and its night temperature 34.8° The greatest heat was 78°, on the 3rd, 1848; and the lowest cold 16°, on the 1st, 1838. The greatest fall of rain was 1.19 inch.

THE SNOWDROP.

A FEW years ago, when the subject of spring flowers was much discussed in the gardening periodicals, and there were warm disputes respecting the comparative merits of the different Forget-me-nots, it seemed to me very strange that but little was said about one or two plants which bloom several weeks before any of the Myosotis family. I visited some of the London parks in January and February last, and judging from these and what I have learned in other quarters, I am led to the conclusion that one of the earliest and also one of the hardiest and most easily grown of our early spring flowers is little taken notice of by those who assume to lead the fashion in spring gardening; yet in point of beauty it yields to none of its compeers. Perhaps its easy culture may have kept it in the background; but let us now examine what advantages the Snowdrop possesses over other early spring flowers.

With the exception of the Christmas Rose, the single white Primrose, and perhaps the Winter Aconite, I am not acquainted with any low-growing plant which flowers so early as the Snowdrop, and that, too, with so little attention—nay, it may often be said it flowers in spite of the rudest treatment or neglect. It is almost as tenacious of life as the Horseradish and Jerusalem Artichoke, for it is seldom we find a dead plant. It is not easily strangled or smothered by stronger-growing plants. Therefore, as regards easy culture it has many things in its favour. The purity of its blossom contrasts strongly with the moist ground in which it is grown, or the other herbage by which it is surrounded; and even when the flowers are dying-off, which they did this year by the 1st of March, their appearance is less untidy than that of the Crocus at the same stage; and for weeks afterwards the healthy glaucous hue of the neatly-curved and fluted foliage is very pleasing, especially when the plant is grown in a continuous line of moderate thickness, the foliage falling in a diagonal direction, and presenting some resemblance to a plait or cord. Another, and to me very important merit, is that mice and other vermin do not attack it as they do the Crocus. The latter we cannot preserve at this place, except in the immediate neighbourhood of buildings, but the Snowdrop flourishes in the most out-of-the-way places, and sustains no injury. The only enemy it is necessary to guard against in our case is the scythe, when the plant is grown on the grass. When cultivated in the borders, allow its foliage to become matured before it is removed. In all other respects it seems to require no attention.

The Snowdrop may be transplanted at any season, the most convenient time, though certainly not the best, being when it has started into growth, and is just showing itself above ground. It is then easily handled, and in general succeeds very well. It is not necessary to take the bulbs out of the ground as is done with Tulips and Hyacinths, but large patches should be divided occasionally. In places where this plant is required to fill beds, I would simply allow large patches of it to remain where they are growing until they show themselves in January, or if the season be late, till February, and then take them up, and plant them where wanted. We do not transplant the Snowdrop much at this place, our purpose being to give it a permanent position some distance from the more showy parterres, where it is allowed to bloom and to mature its foliage without interference. For temporary purposes we sometimes take up the plants.

In most gardens, or rather pleasure grounds, there are groups of shrubs, more or less massive, forming the boundaries, or it may be isolated clumps on the lawn. In many places the turf is allowed to run up to, or merge into the outer line of shrubs, which in most cases are evergreen. This blending of the one with the other is generally regarded as indicating good taste, and we adopt it extensively. All our Conifers and other trees and shrubs after the first few years are allowed to stand out upon the turf, occupying more and more of it as they advance in growth. We have been in the habit of planting lines of Snowdrops in front of these shrubs and upon the grass, a thin single line following the sinuosities of the outside branches, and in some cases a little attention is paid to making an agreeable-looking curve. In no case, however, has any turf been disturbed further than when the Snowdrops are planted. A notch a few inches deep is made in the turf, which is turned back, the bulbs put in at the proper depth, and the turf replaced. We have sometimes planted very small bulbs 4 or 5 inches apart, even when they were in flower, and in two years had a well-filled line. The only thing to be guarded against is mowing where they are growing until after the middle of May, or a little later, by which time the foliage of the Snowdrops will have matured. In the following January they will come up more true to the line they were planted in than anything else I know, and when in flower they have the appearance of a string of pearls. So well is the Snowdrop adapted for this description of spring ornament, that I have extended our plantations of it so much that a friend informs me we have considerably more than a mile of Snowdrop edging.

Snowdrops have been planted on grass for many years; it is certainly more than fifty years since I remember a ring of yellow Crocus forming the margin of a circular grass plot on the carriage front of a mansion, and occasionally since I have met with them in other places. Where mice and other vermin can be kept away, Crocuses may answer as well as Snowdrops, but the latter are earlier, in my case at least, more easily propagated, and not liable to be lost. These properties, as well as others, entitle the Snowdrop to preference as an edging plant. It is equally applicable for early flowering in beds, but for this purpose we find a single white Primrose much more convenient, flowering earlier, and continuing also later.

I prefer the single Snowdrop to the double one for facility of propagation and general thriftiness. I find that a batch of double Snowdrops that we had half a dozen years ago increase very slowly. It is only when

the flowers are examined in the hand that the difference between the two varieties can be detected, and as such flowers are pendant and to be looked down upon where they grow, the difference is not perceptible. I rather think that the single variety is the prettier of the two, and there are many who affirm the same in regard to the Tulip and Hyacinth; moreover, the single-flowered Snowdrop is propagated at least six times more quickly than the double.

In all places where spring gardening forms a special feature, the culture of the Snowdrop ought not to be neglected. The earliest flowers of the season are of much greater importance than those which succeed them, and what flower is so early as the Snowdrop? what so hardy and accommodating? When planted in the way I have suggested it is also seen at a considerable distance, which is no mean recommendation to those confined in-doors.

I have been partly induced to draw attention to this neglected plant from having seen the flower-beds in the London parks gay with Crocuses, Tulips, and Hyacinths, and yet I do not remember seeing the Snowdrop, which always flowers three weeks or a month before any of them, nor did I notice any of the Primrose family; though no doubt there are good reasons for their not being grown; but in private places where it is important to have very early flowers, I have no hesitation in giving the palm of earliness to the Primrose as a bedding plant, and to the Snowdrop as a permanent one, where the conditions are similar to those enjoyed here. All who have patches of Snowdrops in neglected corners should take them up, and plant them out in serpentine lines, and next year they will be agreeably surprised at the result.—J. Robson.

THE NEW ROSES OF 1872.

I have received a list of four Tea Roses and thirty-two Hyhrid Perpetuals, said to be selected with the aid of two of the most eminent Rose growers in France. The descriptions are those of the raisers, whose names, I am glad to see, are affixed to the Roses. I select a few of each family which appear to be desirable. I put them at a guess in the order of merit.

TEA ROSES.

Madame Marie Van Houtte (Ducher).—White, tinted with yellow, large, full, of very fine form, border of the petals tipped with bright rose. Growth very vigorous.

Madame Jules Margottin (Levet).—Superb, delicate pink, tinged with yellow, deep red in the centre, large, full, of perfect form; flowers very freely. Extra fine. Growth vigorous.

Madame Cécile Berthod (Guillot fils).—Fine sulphur yellow, the reverse of the petals lighter; very large, very full, flowers abundantly; superb. Growth vigorous.

HYBRID PERPETUALS.

Madame de Ridder (Margottin).—Fine, bright, amaranth red, very finely formed, large, full; flowers very freely. Growth vigorous. Extra fine.

Madame Guillot de Mont Favet (Gonod).—Glossy white, large, full, globular. Growth vigorous. Extra.

Docteur de Chalus (Touvais).—Velvety purple, shaded with blackish crimson, large, full, and of fine form. Growth vigorous.

Baronne Louise Uxkull (Guillot fils).—Superb carmine rose, cupped, very large, full, and fine form; flowers freely, and is very striking. Extra fine. Growth vigorous.

Madame Lefebvre Bernard (Levet).—Superb bright rose, tipped with white on each petal, very large, full, imbricated; flowers freely. Extra fine. The growth is not mentioned!

Victor Verne (Damaizin).—Cherry red, large, full, and perfect form; growth very vigorous. Extra.

I never buy new Roses without the raisers' names and the word "vigorous." However good they may be, they will not last long in this country. If you buy four Roses take the first Tea Rose and the first three Hybrid Perpetuals. I, knowing the beauty of Eugène Beauharnais (China), have long looked for an amaranth red. Hence I put it first, and the white second, both being desirable colours.—W. F. Radclyffe.

GRAFTING.—No. 6.

CROWN GRAFTING.

General Principles.—Crown grafting is well adapted to many different kinds of trees and shrubs. It is done in spring as soon as the bark rises freely from the alburnum, but care must be taken to prepare the scions beforehand by cutting them off about three or four weeks before grafting. Formerly this was done in the autumn, many months before the grafting season. The scions are taken off in winter before the sap rises, then put in earth, either in a box in a cellar, or under a north wall, in a vertical or horizontal position, covered half their length, the object being to prevent them coming into bud, and to preserve the bark from drying. The scion is a piece of a twig or shoot from 2 to 4 or 5 inches long. Its upper half should have two or three eyes, and its lower should have a long slanting cut, beginning opposite a bud and terminating in a thin point. A small notch or shoulder at the upper part of the cut is useful, as it keeps the scion as if seated on the stock. The insertion of the scion is in the head of the stock on the cut between the bark and the wood, and both sides of the point of the scion should be cut thin to facilitate its sliding in, and that point is often moistened between the lips. A small instrument of wood or ivory, wedge-shaped at the point, is used to raise the bark and to facilitate the introduction of the scion, which is slipped in between the bark and the wood. The introduction of the scion is simplified in most cases by the circulation of the sap, which separates the bark from the alburnum. However, it happens that scions of a large size threaten to tear the tissues; to avoid this take off a slice of bark from the stock corresponding with the cut on the scion, and apply it. The larger a stock is, the more scions will be put on the top of it. To render the union more complete, a space of 2 inches should intervene between them. A ligature, not too close nor too tight, is necessary after the insertion of the scions. Wax or clay is applied, and the adherence of the wax is facilitated by wiping off the sap issuing from the amputated parts.

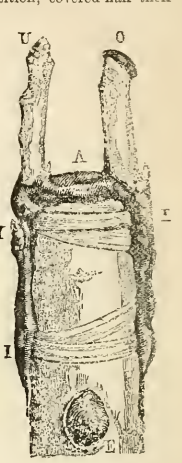


Fig. 1.

Fig. 1 represents a crown graft tied and waxed. The wax is spread on the amputated part (A) of the stock, on the wound (E) at the junction of the scion with the stock, and on the top of the cut scion (O). The terminal bud (U) is not covered, nor the embedded bud (Y) in the incision. Crown grafting is, therefore, indispensable when operating on large trees, and a great number of branches can be produced to correspond to the nourishment supplied by the roots.

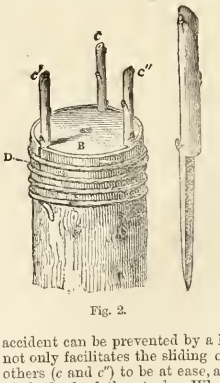


Fig. 2.

Ordinary Crown Grafting.—Given a stock (*fig.* 2 B) headed down, three scions (*c c' c''*) are inserted upon it in proportion to its diameter. It would be difficult to place many scions without splitting the bark at least in only one part. The tension produced by the inoculation of many shoots will end in rending the cortical layers. That accident can be prevented by a longitudinal incision (D), which not only facilitates the sliding of the scion *c'*, but permits the others (*c* and *c''*) to be at ease, and not to threaten the splitting of the bark of the stock. When tied, then wax the crown of the stem, the top of the scions, and front and back on the bark of the stock.—Baltet, *L'Art de Greffer.*

Fruit Prospects.—Alas! for the blossom! The Plums here (Droitwich), are a failure this year, either from overbearing or

the blight of last year. The frost, I am afraid, has ruined the prospect of Gooseberries.—W. Lea.

SPRING TREATMENT OF THE AURICULA.

Believe me, that I am trying very hard to refrain from indulging in public my feeling about the Auricula, a flower so gifted with delicate beauties all its own. Perhaps it is more than usually difficult to keep within bounds just now, when these plants are in the early prime of their marvellous spring life. However, I write only for a practical purpose, and upon a point that bears upon the spring treatment of the Auricula.

Every grower knows what trying weather comes in March and April, when the sun is bright and the wind is cold, and perhaps rough too. It is a matter of anxiety to have lost, even for a day, the inestimable advantages of fresh air and all the light the plants will bear.

First stating that I never let an east wind get at my Auriculas at all, I give the simple plan by which in cold, bright, rough weather I can favour the plants with a gentle circulation of fresh air through the frames, together with that amount of sun which seems very grateful to them, and something like the chequered beams that play upon the Primroses in the budding woods in spring. After early morning sun, shading is readily enough managed by materials well known. Over my lights I throw fine netting. Tempering of rough cold winds I attempt as follows.

My ventilators in each frame, one in front and two behind, are very large wide openings running nearly from one side to the other; in fact they are, as should be, quite conspicuous features in the woodwork. They can be completely closed with wooden shutters hanging over them on hinges. The shutters are raised more or less in all favourable weather; but when the sun is bright and the wind is cold I use slides of perforated zinc, set in zinc frame or binding to stiffen them. These run in a groove, and across the apertures left by the raised shutters, and in this way the force of the cold, or of any boisterous wind, is broken, and rough gusts become, so to say, riddled or sifted air. Auriculas do not like sharp draughts, and to have such pass over the advanced foliage and buds in spring could only have an ill effect.

I beg to disclaim pretensions to anything so brilliant as a stroke of genius in the matter of these perforated zinc slides, and I have not heard of the small contrivance before. Those who are conversant with the culture of florists' flowers know that great is the importance very often of very little things. I do not wish my Auriculas to be blown roughly about, especially with their rising blooms, nor to be subjected to the evils of a thin keen draught, like a knife of wind, through mere slits of ventilation, so this method for occasional protection suggested itself. Fine rollicking winds from Yorkshire moors above us have a way of sweeping through our village, and sometimes take a turn round the airiest part of my garden where the Auriculas are.

In conclusion, I have read with true pleasure the recent notes of my personally unknown friend, "D.," of Deal, upon Auriculas. I hope with him that the prospects of the Auricula are brightening. I have had several inquiries lately about some valuable old sorts. Mr. Lightbody has been asked for more plants than he could supply. We have left Mr. Campbell with solitary specimens of his two new crimson selfs. The time-honoured Auricula show at Middleton, in Lancashire, has been revived, and Auriculas last winter have crossed the Atlantic for homes in the Far West.

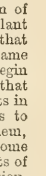
I trust, too, that among the present growers some will follow the steps of such men as Lightbody, Headly, Campbell, and Traill in the most interesting and useful work of raising seedlings. For my own part I could not rest content not to do so, and I will just say what Mr. Lightbody once told me concerning raising seedling Auriculas, "I have raised more fine seedlings from Maria and Sophia than I did for thirty years before." This hint is so valuable, coming from so trusty a source, that I should be sorry, indeed, to think that but few had had it given them.—F. D. Horner.

Royal Horticultural Society.—Mr. W. T. Thistleton Dyer, the Society's recently appointed Professor of Botany, will deliver a course of lectures in the Council-room, South Kensington, during the next three months, on the following subjects:—April 11th, "Flowers: their common plan of construction." April 25th, "Flowers: the variety in their forms, and how brought about." May 9th, "Flowers: their colours and odours." May 23rd, "Fruits: their structure." June 6th, "How seeds are sown in nature." June 20th, "Flowers and Fruits under cultivation." The lectures are to commence at 3 P.M.

TORENIA ASIATICA CULTURE.

Torenia asiatica has long been an established favourite among stove plants, on account of its easy culture and charming appearance when in flower. As a subject for hanging baskets it is very useful and effective; but it is when grown as a specimen plant, with the branches trained to a trellis of a form suitable to its trailing habit, that it appears in all its beauty. From cuttings taken in March noble specimens 4 feet in diameter may be brought to perfection in about five months, and will thus be most useful during autumn for decorative purposes.

The cuttings throw out roots freely in the moist brisk temperature of a hotbed or forcing-pit, and the pots containing the young plants should be kept plunged in such a temperature until after the first two or three shifts. Give them a free, rich, well-drained soil composed of loam, old manure, sand, and charcoal. Syringe freely, and keep the points of the leading shoots pinched off, but attempt no training till the plant receive its final shift into a 10 or 12-inch pot; then the trellis should at once be attached to the pot, and training commenced forthwith. A suitable trellis of galvanised wire can very easily be made. A number of lengths of No. 12 wire are cut and bent as in the accompanying diagram: the straight part is thrust down close inside the pot, so that the curved part projects over the rim outwards and downwards; then, by fastening a few rings of wire on these at regular distances from and parallel to the rim, a capital trellis is formed, over which the shoots ramble with the greatest freedom. The training is a very simple matter, for the form of the trellis is so admirably adapted to the habit of the plant that a slight regulation of the growth occasionally is all that is necessary. Syringe regularly with water at the same temperature as the plants are growing in till the flowers begin to appear, and give guano water as the plants require it—that is to say, use it with judgment, so as to maintain the plants in full vigour without making them so grossly luxuriant as to cause them to wander wildly beyond the bounds assigned them, instead of flowering profusely, and thus spoil their handsome outline. When well managed such plants become objects of much beauty, worthy of a place in the choicest collection. The effect of the rich mass of purple flowers, so charmingly interspersed with the pretty green foliage, is so fine as to cause this method of culture to be more generally adopted.—Edward Luckhurst.



EXPLANATION NEEDED.

We have received more letters about "Amateur," and one from him. He does not live anywhere near Kentish Town, but has letters sent to him. We are making further inquiries.

Crystal Palace.—The aquarium continues to be as great an attraction as ever. Public curiosity is continually on the alert, as every week fresh arrivals of rare creatures are reported. A few days ago a wondrous Ten-armed Cuttle was to be seen; now we have for the first time in any aquarium some curiously beautiful Green Star Fishes, some little comical creatures called Lump Suckers, and real Corals from the shores of the Mediterranean.

RED BEET AS A FLOWER-GARDEN PLANT.

I disagree so entirely with Mr. Luckhurst, and agree so completely with Mr. Peach, in their estimates of Beet for the decoration of the flower garden, that I cannot leave unnoticed the former's letter in your number of March 14th. Mr. Abbey, in the number of August 25th, 1870, writes as follows:—"The foliage" (of Beet) "is Dracæna-like, and arches over from the centre. . . . . Of its value as a decorative plant there can be no question. It is much bolder, and has more of an oriental aspect, than any of the Iresines, Amaranthuses, or Alternantheras. Unlike them, however, it is hardy, does not require to be reared in pots, and takes up no time nor house room. It will grow in cold localities, where Iresine, Amaranthus, and Coleus do not succeed; and it is equally at home in a wet cold summer, as in one like the present. It is just the plant for

places where a mass or lines of a dark purple colour are required with the least amount of labour and expense."

Now, would not anyone fancy from reading the above, that it emanated from the pen of an enthusiastic friend? Could a greater conglomeration of perfections be arranged by anyone? Strange to say, Mr. Abbey condemns Beet in his next paragraph, simply because it is only Beet. How much more sensible is Mr. Peach's remark—that it in no way spoils, in his eye, the beauty of a leaf to know that the root is useful. If a Dracæna were found to be hardy enough for the summer garden, and were it discovered at the same time to be more delicious-eating than Asparagus, would Mr. Abbey reject it?

But Mr. Luckhurst's objection, he tells us, is not because Beet is a culinary vegetable, but because Coleus Verschaffelti is superior to it. Surely this is just no reason at all; for if Beet is a lovely object (and it is so in my eyes), why should we reject it simply because there are other plants superior? We might as well refuse to grow any but one Rose. Beet and Coleus are so entirely different, that they do not in any way clash. We do not want monotony in the flower garden, but variety. Mr. Luckhurst calls the foliage of Beet "vulgar, glossy metallic." I entirely deny its vulgarity. It is one of the most graceful and tropical-looking plants in cultivation, and has many merits which Coleus does not possess. First, as Mr. Abbey fairly allows, it will do in hundreds of places where Coleus will not even exist. Coleus is killed by the first frost, while Beet continues beautiful to the very end of the season. Lastly, not to occupy too much of your space, Beet, like a faithful friend in adversity, outlives the frost and snow, and makes exquisite borders in the spring garden. It is at present very beautiful with me, and will shortly be even lovelier, by contrast, when fringing beds of white Tulips, yellow Alyssum, and blue Myosotis. I should like to know what other leaf plant have we so useful, with the single exception of Golden Pyrethrum.—Q. Q.

MOUSE TRAPS.

Doubtless the mouse trap advocated at page 232 by your correspondent, "Broad Bean," possesses the merit of being effectual in the destruction of mice, but I differ from him when he says that it is the simplest and easiest-made trap. To me its construction appears too complicated to meet with general favour, and, like the old figure-4 trap, it takes a long time to make and set up, so that where there are many to construct and fix, more time is occupied than can well be spared.

I send an illustration of a trap, of which I should like "Broad Bean" and others troubled with mice to make a trial; it is also a capital sparrow trap. I think they will pronounce in its favour. *Fig.* 1 shows the position of the trap when set

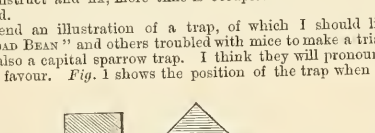


Fig. 1.

up. *Fig.* 2 is its exact position when down. *Fig.* 3 is a piece of wire not more than 2 inches long run through a pea or a bean; its position when used in the trap is shown in *fig.* 1 We have simply to take two bricks, place one on its narrow

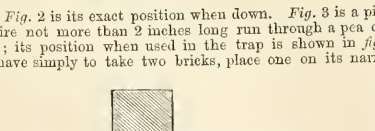


Fig. 2.

side or on edge, and the other on its broad side, as shown in *fig.* 2. It is important to first place the bricks in this way, as you thus find the exact distance at which one brick should be from the other when set up, and when the brick falls it will be in the position represented in *fig.* 2, leaving no space wide enough for the mouse to escape. The next thing to be ob-

Fig. 3.

served is that the wire with the pea be placed in a sufficiently slanting direction for the slightest touch to move it, and then down comes the brick, crushing the victim. The brick when set up rests on the bottom edge of its narrowest side, and care should be taken that the wire may not have all the weight of the brick, otherwise it will press so tightly to the other brick that it will not fall with the touch of a mouse or the gentle peck of a sparrow. I have used many kinds of traps, but have never been so successful as with this; it is just as useful in fruit-rooms or hothouses as in the shrubberies and other places which mice frequent. A score of such traps may be set up in five minutes. I had this trap in use when living at Hawkhurst; it was brought first to my notice by the foreman in the kitchen garden at Lillesden, and, doubtless, he has it in use now. I think he said they had been employed in a neighbouring garden for twenty years.—Thomas Record.

SOME PREDATORY INSECTS OF OUR GARDENS.—No. 28.

Our English landscape in many parts of the country owes much of its beauty to Coniferous trees, though, as compared with more northern climes, we have but a poor display of them. How many different kinds crowd upon the memory!—Pines, Firs, Larches, Deodars, Cypresses, Cedars, Yews; but most of them introductions from abroad, though now partly naturalised; for our native Flora can only boast of two or three Pines, two Junipers, and a Yew, and even these species not all of them certainly indigenous. Numerous are the insect pests which either occasionally attack the trees, or else make their homes within them from year to year. Nearly every order is represented—moths, beetles, flies, sawflies, bugs, each take their turn, and their ravages sometimes cause a serious money loss to the nurseryman, and considerable loss of temper to the private gentleman who has adorned his park, or, it may be, his modicum of garden, with some choice specimens of Conifers, which have to me a pleasant aspect—the majority of them at least—at all seasons of the year, though most attractive in early spring.

"All is not gold that glitters," says a rather musty proverb; and extending it in another direction we might say, "Everything is not a wasp or hornet that looks like one." Yet it is not wonderful that some species of the genus Sirex should have caused alarm in their winged state, seeing that in size and contour they resemble their really dangerous Hymenopterous relatives; also the tail appendages have decidedly the appearance of a stinging apparatus; and to complete it, these Sirices dart about making a loud humming or booming noise, which seems as good as a caution to keep out of their way. Whatever injury they do to mankind, however, is not done immediately, but in an indirect way. They are workers in wood, not in flesh, and their diligence deserves some commendation, for as they dart hither and thither, and examine a succession of trees, they are busy—at least, the female moiety of the race—in preparing a home and food for their offspring. Our admiration cools down when we remember how much harm these insects have done to many forests while in their larval condition; nor have our own trees gone scatheless, though in cold and mountainous districts in other lands their ravages are more conspicuous. In the Pine forests of the north of Europe at their particular season of flight the Sirices sometimes come forth by thousands, to the astonishment of the inhabitants in the vicinity, and such a circumstance is recorded by Mr. Ingpen to have once occurred at Henlow in Bedfordshire; and at an early period in the history of the Entomological Society Mr. Raddon exhibited a portion of a Fir tree from Bewdley Forest, which, though of large dimensions, had been riddled in all directions by the larvæ of Sirex juvencus.

Our commonest species, however, I believe, is that called by entomologists S. gigas, and it is decidedly a handsome insect.

The four wings are transparent and brownish in colour, the head and thorax black, the antennæ yellow, and also the abdomen, which is banded with black. The female has an auger, furnished with powerful muscles, by means of which the eggs are introduced into the solid wood of trees. This species seems widely distributed, and has been found at Chelsea, in Kensington Gardens, and other places near the metropolis. Though strong in flight, however, it rarely seems to travel very far from the Firs within which it has been reared to maturity. The perfect insect is more common some years than others,

Sirex gigas.

and the reason of this is assumed to be that the larvæ grows slowly, being, in fact, either two or three years in reaching its full proportions. These creatures are fleshy and cylindrical; the head is horny, and there is also a horny point at the anal extremity of the body. The feet, of which there are six, are so minute as to be scarcely noticeable when not in use. Various stories have been published from time to time about the emergence of these flies from wood which had not only been felled some time, but actually worked-up into floorings and rafters.

Another Sirex by no means rare in Britain is S. juvencus; and this is less in size than the preceding, though different individuals vary much. Apparently this is due to the peculiarities of the food in the larval state; it is not a distinction between the sexes. The female of this species may be known at once by her steel-blue body and yellow hind legs. The male has black hind legs and a yellow body. According to Mr. Newman there are three varieties, each of which keeps to a particular species of Fir. He states their differences thus:—"The first, Laricis, has black antennæ, and a black tip to the abdomen in the male; the larva feeds on Pinus Larix. Secondly, Sylvestris has also black antennæ, but the male is without the black tip to the abdomen, which is entirely yellow; the larva is found in the wood of P. sylvestris. The third form is named Abietis, with antennæ black at the tip and yellow at the base; the larva feeds on the wood of P. Abies." As the first and last of these trees are not considered natives of Britain, Mr. Newman considers that the special form of the insect which attacks them may have been introduced as well.

One of the most singular circumstances in the history of these insects is this, which is well authenticated, that the flies, when they have emerged in confinement, have attacked metal with their mandibles. Some perforations were first observed in balls sent to the Crimea in 1856. M. Dumeril rather hastily assumed that these were made by the weapon with which the females are armed, and which serves as an ovipositor. The destruction of some cartridge cases in 1861 was brought under the observation of M. Bouteille, who found that both sexes of S. gigas had been at work. The boxes containing the cartridges were made of fir wood, and the insects enclosed at first as larvæ became pupæ and then imagos, and, being unable to liberate themselves, bored through the paper wrappings and the powder, and even tried their mandibles, not unsuccessfully, upon the solid lead. A similar faculty has been attributed to the larvæ, and it is quite possible that this is correct, since the larvæ of some beetle and those of the well-known Goat Moth have been known to make perforations in lead and other soft metals.

Various Aphides and Cocci resort to Conifers, often in considerable numbers; and that elegant and favourite tree, the Larch, is especially persecuted by one of the latter species, ordinarily designated as the Scale, and also the Larch Blight, and which was supposed by Kirby and others to be of the Plant-lice family. This species, Eriozoma Laricis, hardly ever prevails so as to kill the tree, but it gives to the Larch a very disagreeable aspect. It is stated that in a spring season like that which is probably coming upon us this Coccus is peculiarly troublesome. The mild weather in January and February hastens the development of the insect brood; and the tree, especially if young, has quite enough to do to hold its own against the unpropitious weather so frequently ensuing in March and April, without being bothered by so pertinacious an insect enemy. Frost, fog, and cold winds, too, which are unfavourable to vegetable life, do not trouble the Cocci much, if at all. One cause of their comparative immunity is the cottony exudation from their bodies, which not only furnishes a protection against cold and moisture, but helps to divert the attacks of other animals which would make them their prey. As summer advances the insects spread themselves abroad, and the Larches which are infested become clammy and dark with the excretions of the Cocci, which are half-saccharine half-resinous, and which have a fascinating effect upon ants, similar to that produced by the honeydew emitted by the Aphis tribes. Through all the stages of their existence these little creatures are active, employing the rostrum, or sucking apparatus, with which they are furnished to draw from the tree or plant the sap which is so essential to its health. Only towards the close of their lives, when they have deposited their eggs, do the females become torpid; the males, however, which are developed towards the end of summer, take wing, and may be occasionally seen in swarms about the plantations. I do not think, however, that they migrate from one locality to another at a distance. During the winter months the eggs of the Coccus may be seen with the naked eye, or still more plainly by means of a hand-magnifier. They are most frequently situated about the buds and in the crevices of the bark, appearing as black grains. Perhaps these might be dealt with successfully in some cases by washing them from young trees by means of warm water, though it would scarcely kill the germ in the egg. It has been found, however, that water of 120° destroys the living Cocci, and, applied by syringing, it is of great service, no harm being done to the Larch thereby, unless the temperature of the air is very low at the time.

The Silver Fir has its scale insect, and this has a singular habit. Unlike most Aphides and Cocci, it does not infest the leaves of the tree, its favourite habitat is the trunk and the under side of the branches. In certain instances this Coccus is so prolific and pertinacious in its attacks as to cause the death of the tree, or to force it into, instead of the usual growth, an unhealthy yellow foliage; at last, the tree becomes, as it were, encrusted with a mass of living matter, which is hidden from a first inspection by a coating of white and mealy-looking substance. Owing to this natural protection various remedial applications, such as limewater and infusion of tobacco, which would be fatal if applied to the body of the Coccus, fail to do much good. On very choice trees a careful scrubbing of the parts infected with a suitable brush or with wisps of hay has been tried, and found to answer well, the objection being the time and labour required.

The species which commonly bears the name of the Mealy Bug (Coccus Adonidum) is remarkable, because it frequents the Vine, as well as different species of the genus Pinus. The males are so small, and so seldom seen, that some persons have come to the conclusion that there are none; but though the females are to some extent capable of producing progeny without the intervention of the males, this cannot be continued beyond a limited number of generations.

Coccus Adonidum.

One writer on gardening commends the following compound as a destroyer of this and others of the Coccidæ:—2 lbs. of sulphur and 2 lbs. of soft soap are worked on into a lather with warm water, and two or three fluid ounces of spirit of turpentine. A decoction of tobacco is made by boiling a pound of it in two or

three gallons of water. The two are mixed, and the whole made up to five or six gallons.—J. R. S. C.

AMONG THE CONIFERS.—No. 4.

Commercially speaking, of all the varieties of Conifers cultivated in this country, the Larch stands first. The quick growth of its close-grained and most durable timber, its hardy nature—thriving as it does in the poorest soil and most bleak and exposed situations, and the turpentine which it yields, render it a very valuable tree. The timber is even more durable than Oak, especially under water; as an instance of this, we are told that the same Larch piles have supported the houses of Venice for several hundred years, and they still show no sign of decay. Besides being so durable, the fine-grained wood is capable of receiving a high polish, so that it is admirably adapted for furniture and a variety of decorative purposes. Its strength also compares favourably with the Oak and other timber, as is shown by some interesting statements of experiments, published some years ago under the auspices of Government, as well as of private individuals.

These valuable qualities of the Larch have attracted much attention, and led to the formation of extensive plantations. In Scotland there are entire forests of them. Many a rocky mountainous district, hitherto totally void of useful vegetation, is now clothed with flourishing Larch forests, the trees growing most luxuriantly in places where it can hardly be said that there is a soil at all. As these trees attain their full size they will not only be of great value to the owner of them, but will assume a national importance from the vast quantity of valuable timber they will afford for a variety of useful purposes. It is to be regretted that the extensive tracts of waste land in the south of England have not been turned to account for a similar useful purpose, as there is ample evidence of the possibility of its being reclaimed. It is remarkable in this age of progress and of much speculative political economy, that our legislators have not sought to obtain some benefit for the nation from these "barren acres."

From the freedom of its growth the Douglas Fir (Abies Douglasii) will probably rank next in usefulness. In California it grows to a height of 300 feet, and it has already nearly reached 100 feet in this country, the grand specimen at Dropmore being 95 feet high. Its timber is very valuable, being superior to the best red deal. Abies excelsa (the common Norway Spruce) is also valuable for its timber—the white deal of commerce, and for the pitch called Burgundy pitch, and turpentine obtained from its resin. The stately Araucaria imbricata is found in vast numbers in Chili, where it grows to a height of 150 feet. It is highly valued in that country for its edible nuts, and for a juice obtained from it, which is valuable for medicinal and purposes of art. The timber is very valuable, as it is hard, durable, beautifully veined, and susceptible of a high polish.

Many of the Pinuses, besides being valuable on account of their timber, yield turpentine, pitch, and tar. Of these, Pinus excelsa, a handsome variety from the Himalayas, produces turpentine of superior quality; Pinus Pinaster yields what is known in commerce as Bordeaux turpentine; the Italian Stone Pine (Pinus Pinea) is much valued for its nuts, and for a certain balsam obtained from it; from Pinus sylvestris turpentine and pitch are obtained. In the museum at Kew there are samples of Pine wool, made from the leaves of this variety, and used for stuffing cushions, felting, and other purposes, and also of soap made with oil extracted from the leaves. Among the kinds of this species most valued for timber, Pinus Strobus ranks high, its white wood being esteemed for its clean straight growth and freedom from knots. Paper has been made from the sawdust of this variety. Pinus Cembra produces very durable and fine-grained timber. It is much used by the Swiss and Tyrolese for carving toys. Pinus monticola and P. ponderosa also produce fine timber. That of ponderosa is very durable, and so heavy that it sinks in water.

Cupressus sempervirens, a native of Greece, produces very hard and durable wood. That of the Californian variety, C. Lawsoniana, is not so hard, but it is very valuable. The wood of both these trees has a strong aromatic fragrance. Of the Junipers, the well-known variety Juniperus virginiana (the Red Cedar) produces the most valuable wood. It is very fragrant, durable, and is used for a variety of purposes, among others for making lead pencils, as is also the wood of Juniperus bermudiana. Specimens of both kinds of wood find a place in the Kew Museum. Cedrus atlantica and C. Deodara both produce valuable timber, of which that of the latter is remarkable for the high polish it is capable of receiving. Of the timber of the Wellingtonia I can say nothing farther than that it is said to be light, soft, and of a similar colour to Cedar wood. The rapidity of its growth and the huge size it attains, rivalled only by that of the giant Eucalypti of Australia, cause one to hope that it will eventually be as much valued for its timber as it now is for its ornamental appearance.

The wood of the common Yew is justly held in high esteem by the cabinetmaker. It has a beautiful grain, and is capable of receiving a high polish. Owing to the fact of its being planted in most village churchyards, there are, perhaps, more fine old specimens of it to be met with than of any other tree in this country. Many of these old trees are of an extraordinary size. Phillips in his "Sylva Florifera" gives an interesting account of several. He states that one immense tree in the churchyard of Aldworth, in Berkshire, measures 9 yards in circumference at 4 feet from the ground; another in Braburne churchyard, in Kent, measured 58 feet 11 inches in circumference, or nearly 20 feet in diameter; and another in Martley churchyard, Worcestershire, about 12 yards in circumference.—Edward Luckhurst.

THE SOOLY-QUA CUCUMBER.

In reply to several correspondents asking for cultural directions for this new vegetable, I may state that the treatment which it requires is not in any way different from that afforded to ordinary Cucumbers, except that it needs more space, owing to the great length of the fruit. At Messrs. Veitch's it was grown very successfully last year in a house with pot Vines; it has also succeeded perfectly in an ordinary moist stove. One correspondent has sown it in "great heat," but the seed did not vegetate. If the heat is too great the seeds will decay. They will vegetate freely if the pot be plunged in a bottom heat of 85° or 90°, with an atmospheric night temperature of from 60° to 65°. Sow the seeds in moist loam, not wet, but sufficiently so that it will keep moist until the young plants appear above ground. The soil should not be watered until the plants appear above the surface, otherwise they will probably die-off. I do not even water the plants, if it can be avoided, until they are potted-off singly in 5-inch pots. This should be done as soon as the seed-leaves are fully developed, and when the pots are well-filled with roots plant-out in the border which has been previously prepared. I prefer to train the plants over a wire trellis fixed to the roof, and at a distance of a foot from the glass.

The Sooly-Qua Cucumber was introduced by the Messrs. Veitch in the spring of 1871, but they never recommended it to be eaten raw as ordinary Cucumbers. All that they stated was this—that it was boiled and eaten with rice by the Chinese, and also that it had been used in the same way in this country. It will not, I think, come into extensive use as a vegetable. Scarcely anything was known of it on its introduction, except that it had been and is extensively used in China, as it is now to a limited extent in England. It will, no doubt, be used by some as a novelty, but never to the extent of displacing any of our already popular vegetables.—J. Douglas.

MANURES FOR POTATOES.

By Cuthbert W. Johnson, F.R.S.

The very fact that in recent years enormous amounts of Potatoes were imported into this country (in 1869, 1,660,189 cwts.; and in 1870, 771,903 cwts.), proves how desirable it is to enlarge our home produce. Let us, then, examine the results of certain recent trials upon the Potato plant with a variety of artificial fertilisers. But before we consider the value of different chemical applications, let us hear what the great Potato growers of the Yorkshire warp soils and other northern districts have to say on these important inquiries. It was at a meeting of the Boroughbridge Agricultural Association that Mr. Appleyard, of Easingwold, observed (*Farmers' Mag.*, vol. lix., p. 218), as to the selection of soil: The warp of the Humber and Ouse and of the Trent is acknowledged to possess the properties most requisite for their successful cultivation, as during a series of years the quality and quantity are very little deteriorated. Other kinds of soils will grow Potatoes quite as well, but they require changes oftener. A loamy soil, or as it is sometimes called, hazel earth, is next best to warp, and has

been known to produce on some occasions a large quantity per acre; and sandy soils will yield, if well tilled and properly treated, as many as 4 to 7 tons. A piece of old sward, broken up before the winter and ploughed deep, so as to have the sod well rotted, generally grows a very deep crop, and a very desirable one, as their cultivation has a peculiar tendency to free the fresh land from grubs and wireworms, with which it is generally infested. Any kind of land which can be ploughed a sufficient depth, and which is well drained, can grow a crop of Potatoes occasionally to advantage. For manures he found what most Potato growers have discovered—that well rotted farmyard manure is the best, say from 10 to 15 tons per acre, added to which from 3 to 5 cwts. per acre of a mixture of guano and rape nuts. He found April the best month for planting.

If we go farther north we find the great growers of this crop as decided in favour of artificial additions to farmyard manure as those of Yorkshire. This important question not long since engaged the attention of the Western Ross Farmers' Society (*Farmers' Mag.*, vol. lxiv., p. 66). It was at one of their meetings that Mr. Adam remarked:—"Of all crops, the most marked results of top-dressing are produced on Potatoes. He found last year, by actual experiment, that it increases the crop by one-fifth; and, in talking the other day to a farmer (who has been a regular grower of Potatoes for years), as to the quantity he gave to his Potatoes, he told me he never used less than 6 cwt. per acre, and he believed it would pay to give more." He found Peruvian guano 1 cwt., potash 1 cwt., and best dissolved bones 2 cwt., to suit him best; 2½ cwt. put down when planting, and ½ cwt. when earthing-up.

And now let us proceed to the valuable experiments instituted by Professor Voelcker, in the season of 1870, and carried out by Messrs. Hull & Coleman, at Escrick, near York (*Jour. Roy. Ag. Soc.*, n. s., vol. vii., p. 379). The soil a sandy loam in a fair agricultural condition. The manures employed, and the weight of the tubers per acre will be found in the following table.

Manures used per Acre.	Cwts.	Produce per Acre. Tons	cwts.	lbs.
No manure	..	3	17	35
Mineral superphosphate and Potash salts	4 and 2	 8	19	92
Mineral superphosphate and Sulphate of ammonia	4 and 2	....		
	tons			
Good rotten dung	20	 9	2	56
	cwts.			
Mineral superphosphate and Potash salts	4 and 4	 8	19	60
No manure	..	.. 4	9	32
Mineral superphosphate and Potash salt	4 and 2	 8	15	40
Nitrate of soda	2	 5	2	56
Peruvian guano	4	 4	8	24
Mineral superphosphate and Common salt	4 and 4			
	tons			
Good rotten dung	20	 11	6	68
No manure	..	 5	3	104

Upon these valuable experiments the Professor remarks:—"In a dry season rotten dung produces the most luxuriant crop. In such a season, however, very nearly the same increase may be obtained if, instead of dung, a mixture of 4 cwts. of mineral superphosphate, 2 cwts. of potash salts, and 2 cwts. of sulphate of ammonia or nitrate of soda, be used per acre as a Potato manure. Relying on the experience of the past three seasons, I can confidently recommend this mixture as an excellent and well-paying Potato manure for light soils, when dung cannot be employed in sufficient quantity for that crop."

The general result of these experiments leads to one conclusion—that we have yet much to learn as to the most profitable employment of artificial fertilisers to our Potato crops.

Mrs. Pince's Black Muscat Grape.—Mr. Hill, of Keele Hall Gardens, sent me three bunches of Grapes to taste—viz., Black Alicante, Lady Downe's, and Mrs. Pince. One hardly expects to see Grapes in perfection later than the 3rd of March, the day on which I tasted these. Having always thought well of Mrs. Pince, I was glad to find this famous Grape-grower agreeing with me that the flavour of this much-abused variety was very superior to that of Lady Downe's, whilst Black Alicante could not be compared with either of these kinds. All the three varieties were almost as plump and perfect as when first ripened. Each bunch was divided between six or eight persons, but there was no difference in opinion, the verdict was unanimous in favour of Mrs. Pince.—J. R. Pearson, *Chilwell*.

EUCHARIS AMAZONICA.

This plant (known to botanists as Eucharis grandiflora) has become most deservedly popular during the past few years. A walk at this season through the grand row of Covent Garden Market would be sufficient to prove the fact, even to those who have no opportunities for seeing and knowing the extent to which the plant is grown in private establishments—not that it has become a market plant, nor do I imagine it will ever become such, but the cut blooms are sent there in considerable numbers, yet not so abundantly as to render them everybody's flower, for I have frequently during winter paid 1s. for a single bloom. Certainly, it is scarcely possible to conceive a more beautiful object for vases, or for the centre of a hand-bouquet; I am particular in saying the centre, because, except in a large bouquet, the flowers are too large for other places, but if a large and massive bouquet is to be made, they have a beautiful effect as an outer edge.

Eucharis is a genus of Amaryllidaceæ containing but few species, the present being, perhaps, the most beautiful and useful of the whole family, although I hold E. candida in great estimation, for, on account of its producing smaller blooms, it is even more useful (if that is possible) for bouquet-making than E. amazonica; but still as a plant it lacks that majestic appearance which is such a distinguishing character of the latter species.

Eucharis amazonica is a native of the low moist regions on the borders of the river Amazon, and upon this knowledge of its natural habit I base my treatment; for it seems to me that if the plant inhabits such places in a state of nature, the roots will seldom or never become dry at any season. I have grown this plant in considerable quantities, both as large specimens, and as small plants suitable for placing in ornamental vases for the embellishment of the drawing-room and boudoir, and under my system they have proved almost perpetual bloomers. I must, however, in common fairness allow that, although I cannot agree with my friends who practise the drying-off system, I cannot but admit that they do produce good crops of flowers; but still I maintain that their plants will never prove such perpetual bloomers as mine, and, moreover, that my plants not only produce a much greater number of flowers during the season, but they are always handsome and presentable—a feature which cannot be claimed by those who put them to rest at certain periods. The soil for the successful culture of E. amazonica should be turfy loam, fibrous peat, and good, rich, but thoroughly decomposed manure in about equal parts, to which must be added a fair proportion of sharp river sand. The plant enjoys liberal supplies of water and strong moist heat to any degree, therefore the drainage must be kept in thorough working order to prevent any stagnation. I am not an advocate for very much pot-room, but prefer renewing the surface soil, say once or twice during the season, and feeding the plants frequently with artificial manure, and by no means allowing them to suffer from the want of either heat or water. In order to maintain a succession of these noble Narciss-like flowers it will be well to place the plants as they pass out of bloom in a somewhat cool stove, or in some situation where the temperature is lower than that of the house in which they are grown; but do not keep them dry.

The bulbs of Eucharis amazonica must be planted below the soil. From these bulbs the leaves usually arise in pairs; they are ovate, spreading, somewhat fleshy or leathery in texture, from 12 to 18 inches long, and of a very dark green; the flower-spike is stout and erect, usually attaining the same height as the leaves, and bearing upon the summit some five or six delicately fragrant pure white flowers, which last a long time upon the plant. When cut and placed in water, and set in a vase with a few sprays of Maiden-hair Fern, the flower is a gem of the first water, being at once chaste and effective.—Experto Credе.

TREE LIFTING.—No. 2.

If you lift a large tree which has not been previously taken up, a somewhat wider circle must be dug out, leaving about one-third of the roots, or nearly so, undisturbed. The turning-over will be a little difficult, but may be more easily effected

by fastening a strong rope about two-thirds up the tree to steady its descent, and to prevent its coming down suddenly. Some of the stronger upper branches may be caught by long forks, such as those used in *fig.* 3, to lift up with, but it will not be so difficult if the soil be cleared out some little distance farther on the side on which the roots are left, so as to allow them more space to bend; and as they will most likely have grown very irregularly, to keep them properly spread and in their places, it will be advisable to have some strong forked pegs well pointed, inserted with a small iron bar, and afterwards driven firmly in with a wooden mallet. These will not only keep the roots in their places but will help to secure the tree from blowing over. In addition, very large trees will require some other support to keep them quite safe (see *fig.* 4). I use three or four long forked poles at the angles; on the opposite side to that on which the roots are left, of course none will be needed. As the poles would look very unsightly on a lawn or any conspicuous place, in such positions tar rope may be fastened—say, at two-thirds the height of the tree, previously placing a good bandage round the tree to save it from being chafed or wounded. The ropes will of course be fastened to sufficiently strong pegs, and by means of such ropes the tree may be more easily lowered and raised again than would otherwise be the case.

As I have practised this mode of tree lifting for many years, and on many hundreds of trees, I can confidently recommend it as a most successful method, and I know that no one will regret giving it a trial if it be carefully practised, and doubtless it may be improved upon.

I ought, perhaps, to say a few more words about Pears on Quinces, Apples on Paradise stocks, and Cherries on Cerasus Mahaleb. As to the last producing fruit earlier, there can be no question, and I find many Cherries bear even a much better crop than on the free stock, but as I before remarked, the

Fig. 3.

Cherries do not lift so well when they become large as they do on the free stock, and Quince stocks will not succeed in very sandy soil.

I will now give dimensions of a few Pears on Quince stocks.

	Age.	Height.	Spread.	Diam. of Stem.
	Years.	Feet.	Feet.	Inches.
Jersey Gratioli	10	12	5	3
Conseiller de la Cour (a very handsome tree)	10	13	8	4½
Beurré Hardy	10	14	5	4½
Beurré Bretonneau	10	12	5	4
Pius IX.	10	12	5	3
Prince Albert	10	13	6	4
Nouveau Poiteau	10	13	4½	3½

I find Apples on Paradise stocks bear well, but from the smallness of their roots they are difficult to keep upright if lifted when the trees get large. A tree naturally a bad grower may be made quite ornamental by providing for it a full-grown stock—say, Broom Park, Beurré Gris d'Hiver Nouveau, or Prince Albert, for late Pears; and Beurré Léon le Clere, Beurré Superfin, Doyenné Robin, Duchesse d'Orleans, or similar good growers of whatever height you may desire—6, 8, 10, 12, or more feet. Care must be taken not to leave the branches grafted too long, or the variety which is put on will not have room to properly expand itself without becoming an unsightly tree. One Pear Alexandre Lambré, I could not even get to live more than four or five years on the Pear stock, but I have since worked it on an old variety, and have by this means obtained a magnificent tree.

The following are a few points in which my method of tree-lifting differs from that of Mr. Rivers, not so much in the mode of operation as in the results. Mr. Rivers's method is intended for small gardens where many varieties may be grown in a small space; mine is intended for those of any dimensions, however large. Mr. Rivers's was intended partly as a source of amusement, mine more as a source of profit; Mr. Rivers's only for the fruit garden, mine may be applied to ornamental trees and shrubs previous to their removal, by waiting two years—that is, by giving two liftings—almost with a certainty of success. How much has been written about the manner and time for transplanting large Hollies and other trees and shrubs, and what a cumbrous affair has been the removal of many hundredweights and sometimes tons of soil, and how great the risk of their growing! In this way, however, there is no occasion to remove any larger proportion of soil than in the case of a tree or shrub 2 feet high, and the trees are almost certain to grow—at least I have only lost one out of many hundreds, and that was chiefly through carelessness. Many valuable trees, after years of growth, are found to be in the

wrong place, and it is desired that they should occupy a more conspicuous or favourable position, but owing to the risk involved in their removal they are allowed to remain where they are; by treating them as I have mentioned in referring to large trees not previously lifted, the desired result may be obtained.

After all I have said, and however much my method differs from Mr. Rivers's in its application or its object, I must again observe that I am entirely indebted to him for it; but for my attempt to apply his method to rather large trees my own suggestions would never have occurred to me. I am a market gardener, very fond of fruit-growing, and of course desire to make it pay. I find that my attention to lifting as I have described answers admirably both in respect to the quantity and quality of the produce, for lifting causes a check to growth which promotes the formation of flower-buds, and by keeping the roots near the surface not only encourages this, but causes the production of fruit much better in flavour and appearance. Both the quantity and quality of the fruit are improved by careful attention to thinning it when young. I often cut out two-thirds, and sometimes a very much larger proportion when fully formed or set.

I will next give the proportionate surface per acre of trees at various distances. If we first take trees in rows 6 feet apart by 4 feet from each other in the rows, there will be about 1768 trees to the acre, and estimating each tree to be 6 feet high, and to have a surface of 36 feet (as at this height the trees may touch at the base), there will be a surface of 61,248 feet to the acre. With rows 9 feet apart, and the trees 6 feet from each other in the rows, we have 752 trees to the acre; these at 12 feet high and 1 foot apart at the base (which will give only 5 feet in diameter instead of 6 feet) will each have a surface of 90 feet, or 67,680 feet to the acre; at 10 feet by 8 feet, 586 trees to the acre, which at 15 feet high and 1 foot

Fig. 4.

apart at the base will give a surface of 147 feet to each tree, or 86,142 feet to the acre. I am not in a position to be able to give the proportionate quantity of fruit per acre, but may we not infer that as the surface is so much greater, so the quantity of fruit will be greater too? I must not omit to mention that manure or compost can be applied with the greatest ease when the trees are out of the ground.

There are a few other matters, which, although foreign to the subject of fruit-tree lifting, may not be altogether out of place. One of these is, gathering fruit of the same varieties, particularly Pears, at two, three, or more times, a week or so apart. This may apply to Pears of all seasons—summer, autumn, or winter. It is my impression that many of our choice Pears are not tasted in their best condition, owing to this practice not being adopted. I know by experience that it is not only possible to let summer, but autumn Pears remain too long on the trees. The exact time at which a Pear is at its best—that is, most suitable for table, cannot always be ascertained from its look, or feel, except by very practised persons. Many a really good Pear is often condemned owing to the want of frequent trials.

In storing I differ from many; my plan was adopted more from necessity than from any other cause. A person who grows a large quantity of fruit, and retails much of it, is often at a loss how to make the most of his store rooms. I store upon what I call stages, made of four upright posts supporting a number of trays; each of my stages contains six trays. These are about 9 feet 4 inches long, by 2 feet 4 inches wide inside measure, they are bottomed with galvanised iron net over which is spread a very thin coat of straw, covered with paper, and upon the latter the fruit is laid. In this way there is a perfectly elastic bottom which prevents the fruit being marked by pressure on the bottom, and in turning the fruit to sort them, if any roll down, the bottom being soft they are not bruised. Each stage will hold, in proportion to the extent you pile up, from thirty-six to fifty bushels of fruit. Another advantage is that the fruit keeps much firmer owing to the bulk. For a stage the size of mine the room must be a little over 8 feet high, but in a large room there may be several stages. If I erect some new rooms I intend having one especially for Apples and Pears, and long enough to contain twenty stages. Such a room will require to be about 56 feet long by 20 feet wide, but with 15 inches more in height, there may be room for another tray on each stage.

Whatever attention these after-suggestions may have from the reader, I am persuaded he will not regret a trial of tree lifting.—George Lee, F.R.H.S., *Market Gardener, Clevedon, Somerset.*

Garrya elliptica.—I have known one for more than a quarter of a century in our squire's garden only protected by the shrubs around and trees above it; and in mild winters it

has longer catkins than in Mr. Robson's specimen. The female shrub has not yet arrived in England. It would repay some enterprising merchant or traveller to procure it. It is a tree that will cover a wall as well as a Pyracantha.—Hereford.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Extreme neatness should prevail in every part. Let the edges of the walks be made good throughout, and the gravel if loose, be turned and raked in dry weather in order to destroy weeds and moss. Trenching and forking-up ground, and surface-stirring among advancing crops must be persevered in. *Peas* sufficiently advanced should now be staked, after which the ground should be lightly forked between them. Continue to make successional sowings of Peas and *Beans*. Sow *Sea-kale* seed; the beds should be deeply trenched and have plenty of rich manure and ashes. If it is required, sow *New Zealand Spinach* in gentle heat.

FRUIT GARDEN.

The season for disbudding fruit trees is fast approaching. The importance of this operation is generally acknowledged, and upon its proper performance mainly depends the production of a proper quantity of clean healthy wood. Take, for instance, a single branch of a Peach tree. When it first starts in the spring, if in a healthy fruit-bearing condition, it will probably throw out fifty wood shoots, and perhaps a greater number of blossoms. If the whole of these were allowed to remain it is probable that some two or three of the leading shoots would take the lead, and, appropriating all the nourishment, would become rank and over-luxuriant, whilst the remainder would be weak and the fruit small, ill-flavoured, and in a great measure abortive. Hence the necessity and importance of a systematic course of disbudding, by which I mean the entire removal of every fruit and shoot not required to be brought to perfection. In order to have fine trees it is necessary to begin with them from the time of planting, and the selection should always be made with care. Those only are worth planting which are well furnished with clean healthy wood from the centre to the circumference; if they are not so, they should be closely headed back until they have formed good heads. Supposing that the tree which is to be operated upon has from eight to twelve branches of young wood springing from the centre, the object to be obtained is that the branches may not only elongate so as to cover a greater circumference, but also produce healthy branches from the centre, and this is attained by removing at four different thinnings every shoot except the terminal one, and that nearest the base on the upper side of the shoot. If this were done all at one time the trees would be injured, but by disbudding at intervals, the shoots to be left acquire sufficient strength to absorb all the nourishment the tree can give, and the sap being equally distributed, no shoot will assume an undue predominance. It is fatal to this system of disbudding to leave more shoots than specified in the hope of sooner getting a tree full of wood. We must remember that the first year the shoots are doubled, and so on progressively, which is quite fast enough for the well-being of the trees.

FLOWER GARDEN.

March is truly styled the gardener's busy month; to be successful he must be continually on the alert, for it is not the flower department alone, but others also, which demand his unceasing care and attention. All operations in this quarter should be completed as quickly as possible. Prosecute vigorously improvements of every description; bring speedily to a close the digging and raking of borders, sowing grass, laying down turf, and planting deciduous evergreen shrubs. Make a sowing of all the showy hardy annuals in the flower garden and shrubbery borders. Make new plantations of Russian Double Blue and Double White Violets for this purpose, and select the young runners, but give the preference to seedlings of the Russian Violets, as they make stronger plants and flower more abundantly than offsets. Sow choice Ranunculus seed in shallow pans or boxes, cover the seeds as lightly as possible, and place them in a cool frame. The watering of the Ranunculus, Pansy, Pink, Carnation, Hyacinth, and Tulip beds should be attended to during dry weather, and a little manure water now and then would be of great service to them, especially to Ranunculus beds. This operation should always be performed in the morning during this season of the year. All water that may lodge in the hearts of Tulips and Hyacinths should be extracted every evening.

GREENHOUSE AND CONSERVATORY.

This is a trying period for the conservatory plants, at least for those of delicate habit, and a slight shading may not be amiss for an hour or two on very sunny days. Maintain plenty of moisture in the air, and allow as free a ventilation as the sharp winds will permit. Sow Chinese Primrose and Cinerarias liberally; those well attended to will make strong autumn-flowering plants. The Himalayan Primula denticulata, although hardy, forms a nice dressy little plant for a mixed greenhouse. Thunbergias and various exotic seeds may be sown without delay. Those who wish to have Camellias in blossom from October to May must take care to force their plants into wood successively. If a given stock is divided into three portions, one portion to be subjected to this process in February, a second in March, and a third in April, this object would be effectually accomplished, provided the subsequent treatment was what it ought to be.

Camellias in a house by themselves, under good management, should be now growing satisfactorily. They should be slightly shaded in bright weather, and syringed two or three times a-day—in fact, kept constantly moist. A temperature of about 60° with a circulation of air day and night will suit them perfectly. Abundance of weak and tepid manure water should be given them all the spring, but the moment they cease to make wood they should be subjected to a considerable amount of drought at the roots, still, however, being syringed and shading. Let the liquid manure be resumed as soon as the blossom-buds are fairly formed. Under this treatment they will be found to succeed remarkably well. In greenhouses a shelf or two should be devoted to the free-blooming hybrid Roses. Cuttings of these struck last summer, and kept through the winter in store pots, if potted now and subjected to high cultivation, will make nice bushes for next autumn and the ensuing spring. They should be forwarded in-doors for a month, and when established in 5-inch pots receive their final shift at once. All blossom-buds should be kept pinched off during the summer if intended for early winter or spring bloom. Cuttings of young wood struck now will flower nicely late in the autumn, provided they are duly attended to. Encourage afternoon or evening warmth, but give air freely during all the early part of the day. Take care to fumigate little and often in all plant houses or pits whenever green fly makes its appearance.

STOVE.

Much attention is necessary at this period to growing stock. Much progress may be made in a little time by a judicious course of culture, indeed the time is at hand in which the whole foundation of a clever display, during summer, autumn, and even the succeeding winter, must be laid. In this house both heat and moisture may now be increased, and have shading in readiness to ward off bright sunshine for an hour or two in the day. Use liquid manure constantly to stove plants in general.

PITS AND FRAMES.

Look well to the propagation of mass plants. If former directions have been kept in view, many of the cuttings will soon be rooted. As such occurs they should be removed directly to cooler situations preparatory to potting-off. The plants for masses should be showing flowers, if possible, when planted out in the second week in May. See that such climbers as Rhodochiton, Maurandya, Lophospermum, Tropæolum, &c., are propagated or cultivated for blanks or trellising, &c.—W. Keane.

DOINGS OF THE LAST WEEK.

KITCHEN GARDEN.

A sharp dry frost on the 21st, and frost with snow and sleet on the 22nd, made us think of using protection for plants that would have otherwise held their own. Placed a little litter over the most advanced Cauliflowers under hand-lights, as, though small plants will stand very well, large plants with good foliage are apt to button or show the flower-head prematurely if they receive a sudden check. There was the more danger of buttoning in our case, as, after thinning, the plants had been watered and richly mulched to bring them on. The plants thinned out, and also those planted out, have had in some cases a laurel twig, and in other cases a large pot set over them, as the frost will not be likely to continue, and it is as well to avoid a check for the reasons stated above. Forward Peas may need protection if the cold weather continue. Potatoes, Radishes, Carrots, and Cucumbers in pits and frames received a little extra protection to keep all safe and comfortable. Cucumber beds, and a pit that had a lining, were banked up to

the top. In cold weather this is of more importance than having too much bottom heat, as the heated wood of a frame, and the heated wall of a pit, keep the atmosphere inside dry and warm; in fact, where fermenting manure is plentiful, as in many of our farmers' yards, and where there are large dung-heaps, whence the heat goes off into the open air, there is no better plan for growing Cucumbers after the new year than a brick pit built single brick on bed laid in cement, with a 9-inch pier every 4 feet. With a good wide lining of fermenting dung against the sides and ends of such a pit, we never had any difficulty in getting plenty of bottom heat and plenty of top heat, but then we had as much manure as we could desire. The plan, however, will not answer unless the linings are kept up, the wasted manure removed, and fresh added. The closeness of the wall did away with all danger from steam, however fresh the manure was when brought; in fact, we used to work these linings to get sweet material for Mushroom and other beds.

Sea-kale.—We omitted one thing the other day when speaking of covering the heads—that is, that though pots are effective enough for sheltering Sea-kale in ordinary weather, still when the thermometer shows some 8° below freezing, a little litter should be placed over the pot. What we find equally good, and less obtrusive to the eye in small neat gardens, is a little rough dry hay or short straw packed round the inside and top of the pot, in which case the heads will come out white and sound, even should there be a sharp frost. If there is no frost the heads even then will appear more regularly.

FRUIT GARDEN.

The Gooseberries, Currants, and Raspberries were so forward that we shook a little sprinkling of dry hay over the bushes to help them. This acts in an especially beneficial manner when a bright sun comes fast after such a frosty morning. The wind will generally sweep away all such protection, when it is raked off or otherwise disposed of. We have thus several times in seasons like this secured a crop when bushes left fully exposed to the frost were barren, in consequence of the young fruit having all dropped.

Apricots, Peaches, &c.—We did not intend to do anything with these, but as some of the buds were opening we thought it advisable, in the absence of other means, to give a light protection with evergreen twigs.

Other fruit trees out of doors are fortunately not so forward as to be injured by the frosts we have had, but will be benefited rather than otherwise by the check given to growth and the swelling of the buds.

Strawberries.—We placed a number of plants under glass in houses in order to bring them on, and as those left had received a little protection in winter, we covered them with litter that the frost might not injure the buds. Such plants, when not protected, are more liable to suffer than those exposed all the winter. The litter can be removed in a few minutes if the weather changes. Our plants in pots are plunged, and therefore would suffer less; but even the surface of the soil in the pot was hard on the morning of the 21st, and it would be better for the buds and roots that the thawing should take place in the dark, under a little litter, than where the plants would be exposed to a bright sun. We have seen excellent plants that did little good because the fine roots close to the sides of a porous pot were killed by a sharp frost, and the expanding bud could not for a time receive any benefit from fresh-made fibres.

Orchard Houses.—Here early shutting-up instead of leaving air on at night, and the still atmosphere thus secured, are elements of safety. Peach, and especially Apricot blossom, will withstand a considerable degree of frost if the atmosphere is dry and still.

In addition to what was lately advanced with regard to orchard and other fruit houses, we must remark that it is important in the case of *Figs*, whether in pots or planted out, that the roots should never be allowed to become dry after growth has fairly commenced, otherwise the minute fruit will be apt to drop. The same thing will happen if the roots are in stagnant water. Good drainage is essential, also tolerably free watering. When much fruit is required, the roots should have but a limited feeding ground. Short stubby shoots are the best security for plenty of good fruit.

Temporary Slight Hotbeds.—In alluding to covering the Vine borders last week with warm tree leaves and making a wall of litter, &c., back and front, we omitted to state that we generally have these walls 15 or 18 inches higher than the border. If a pole or thick flat board is laid on these litter walls we can put sashes or poles across; and depending, as we mainly do for the flower garden, on small cuttings taken off late in autumn, we find the plants are stronger at planting-out time when we can give them a little help in such places. Until now the bulk of our bedding Geraniums are in boxes, with an area of not much more than 1½ inch square to each.

ORNAMENTAL DEPARTMENT.

Alterations having deprived us of many rough but useful conveniences, we have been obliged to clear off a quantity of useful vegetables in order to make temporary earth pits (which will serve for Celery-beds, &c., afterwards), in order to plant out Calceolarias. These were struck in a pit, and are a perfect mat and need moving, so as to form fine robust plants by planting-out time. The frost put a stop to our planting, but those planted are safe enough. Sticks from 1 inch in diameter were placed across the beds, and on these were laid old hurdles thinly twigged with branches just to break the force of the sun's rays at first. On these, after the frost threatened, a little dry litter from the stable was spread to keep all secure. With the cross-pieces and mats fixed firmly to a pole, little other protection will be needed, and a pole at each end allows of a good length being rolled up and moved. For such temporary purposes the best of all protection is thin unbleached calico generally about 5 to 5½ feet in width, and better if nearly 2 yards wide. Make your earth or turf pit of the right width. Such calico in from 20 to 40-feet lengths, with a pole 1½ inch in diameter at each end, can easily be rolled off or on; and when pulled tight lengthwise, and then at the sides, with a cord every 4 feet or so back and front, sewed to the calico, and the other end to go round a peg driven in the ground, the cover will throw off water like an umbrella, will allow enough of light for free growth at first, and render shading unnecessary. Planted out under such calico, and watered as we went along, we have frequently taken up fine plants in May of Calceolarias and Geraniums, and they did not need watering except a few days before transplanting to the beds. In fine days the calico would be rolled off. In very cold frosty nights a little litter was thrown all over it. For instance, in such a night as the 20th and the morning of the 21st we should not have deemed the calico sufficient for plants standing thickly previously, and therefore more tender than if they had more room. Our Calceolarias had on an average 1½ inch to each, and though the sashes were drawn off in the late fine weather, the very mildness made them rush up, but not one in two thousand cuttings have failed.

Much of the planting in these cold earth pits, and potting for such places as that referred to on the Vine borders, has been arrested owing to the cold, for we would rather wait a little than have plants unnecessarily checked. In all artificial gardening, such as plant-growing in pots, we feel certain that we shall have less to contend with as respects the depredations of insects, in proportion as we see more and more the importance of guarding against sudden checks even as respects temperature.

Air giving and Firing.—At all times, and especially in such changeable weather, more depends on the time of giving air than on its quantity. Whether in plant houses or forcing houses, large openings at the ventilators should be avoided as long as these north and east winds are likely to prevail. If after such frosts the sun threatens to come out strong, it is better to let the heating become rather cool. Give a little air at the highest point early, instead of keeping a fire on and giving more air to counteract it. Many a tender plant is injured by the dry heat from the fire.

Put Achimenes and Gesneras in pots and pans to come forward to be potted afterwards. Placed Justicias and Eranthemums where they would break slowly after pruning back severely, and inserted cuttings of Euphorbia jacquiniæflora and Poinsettia. Old stems of the former will strike after the bleeding is over, and to hasten this result we often put the ends in dry sand, or even powdered chalk. Little side shoots of Euphorbias, with the leaves, often do best. The Poinsettias may be reared by single buds placed firmly under the soil in a hotbed, just like Vine eyes; but in cutting down the old stems for this purpose it is well to allow the roots to become dry before cutting, as then there is less of bleeding, and the bud, with a piece of the stem at each end, will throw a stronger shoot in consequence. The bulk of our stock has been lying with the pots on their sides under the stage in a cold house. If we had room, and wished for some large gorgeous heads, we would prune the plants back, encourage them to make free growth all the summer, and give a little check in autumn

That is the mode of obtaining crimson heads like parasols. Small heads may be obtained from plants in small pots and dwarf in proportion.—R. F.

TRADE CATALOGUES RECEIVED.

Downie, Laird, & Laing, Stanstead Park, Forest Hill, London, S.E., and 17, South Frederick Street, Edinburgh.—*Descriptive Catalogue of Florists' Flowers, &c.*

C. L. Allen & Co., 76, Fulton Street, Brooklyn, New York.—*Spring Catalogue of Vegetable and Flower Seeds, Roses, Bedding Plants, Flowering Bulbs, &c.*

TO CORRESPONDENTS.

*** We request that no one will write privately to any of the correspondents of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely to The Editors of the Journal of Horticulture, &c.*, 171, *Fleet Street, London, E.C.*

BOOKS (*Horticultural Works*).—Johnson's "Science and Practice of Gardening," "The Garden Manual," and Keane's "Out-door" and "In-door Gardening." Each of the four works is small in price, and can be had at our office.

AURICULA SEEDLINGS (*An Revoir*).—They will do as varieties for the border, but they have no merit as florists' flowers.

PLANTING SMALL FLOWER GARDEN (*A Reader*).—We never undertake planting, we only criticise that proposed.

CYCLAMEN NOT FLOWERING (*A Subscriber*).—You do not say what the kind or kinds are, but we presume they are C. persicum. By your own account they are in the vinery on shelves near the glass, which is about the worst place conceivable for this plant. Keep them well supplied with water until the leaves begin to turn yellow, and after May place them in a cold frame, on coal ashes, and water so as to keep the soil just moist. After June plunge the pots in coal ashes in a dry situation and shielded from the midday rays of the sun. Here they will not need water, and may remain until the middle of August, when they should be turned out of the pots carefully, as much of the old soil removed as can be done without injuring the roots, and placed in pots twice the diameter of the corms. Give the pots a good amount of drainage, and in potting be careful to cover the corms entirely with soil. A compost of two parts fibrous light loam, one part leaf soil, one part sandy peat, and half a part each charcoal and silver sand, will grow them well. Place them in a cold frame and keep them just moist in all their stages, but avoid watering excessively, or before it is required. In September remove them to a house with a temperature of 50° to 55°, and place them about a foot to 15 inches from the glass. Continue this treatment until they begin to flower, and then remove them to a house with a temperature of 45°, where they will bloom for a long time.

SCARLET BEDDING GERANIUMS (*G. S. Lewknor*).—You may without fear of disappointment purchase any of the following—Cybister, Stella, Trentham Scarlet, Sutton's Scarlet Perfection, and Christine.

CHALK AND GRAVEL FOR WALKS (*New Subscriber*).—Any chalk reduced to a powder will answer.

PIGEONS' AND FOWLS' DUNG FOR LIQUID MANURE (*St. Edmund*).—You do not inform us how much water you put in your eighteen-gallon cask with the dung. We conclude it was a small quantity, and we apprehend it is now a paste-like substance. To every gallon of this add fifteen gallons of water, and it will be a most excellent and powerful liquid manure. On a south or east border in your well-protected garden you may sow Dwarf Kidney Beans from the 16th to the 20th of April for a first crop, but it not unfrequently happens that those sown at the beginning of May come in sooner. Sir Joseph Paxton, an improved kind of Sion House, is what we sow for an early crop; and for succession crops Negro and Liver-coloured are both excellent sorts for out-door cultivation.

ROSES (*W. W.*).—Your Rose is certainly not the Cloth of Gold. It has all the appearance of being Safrano, from its buff-apricot colour and hollow centre, Safrano is beautiful in bud but worthless when expanded. If it turns out to be full to the centre it is Madame Falcot; both are Tea Roses. Safrano is a vigorous grower; Madame Falcot is moderate in growth, but the flowers fuller to the centre. Should the centre prove coppery it is Rêve d'Or. We believe it to be Safrano.

FLOWER-BEDS' PLANTING (*Idem*).—We think the proposed planting is very good. In group first, we would just suggest for your consideration, whether the two clumps of scarlet and purple Verbena would not be better of an edging of Variegated Alyssum, and if the two beds, 5, 5, would not also be improved by a similar edging, or even the Golden Pyrethrum. The second group of nine clumps will look very beautiful. The Rose-bud is noticed above.

SEEDLING CHERRY (*J. Sedgeley*).—Although the top is broken off, yet if the side branches are allowed to grow they will bear fruit.

PAINTING ROOF OF GREENHOUSE (*J. H.*).—If you mean oil paint, certainly do not use it if you mean to apply it over the glass. If only over the woodwork there is no objection. The best plan is to apply blue-tinted whitewash to the glass inside. This can be washed off at the season of the year when there is not excessive light. Oil paint would make the house too dark.

MUSHROOM CULTURE IN A CELLAR (*D. P. E.*).—In No. 497 of our Journal are full directions. They are too long to reprint. You can have a copy for four postage stamps.

MANURE TANKS (*E., Bristol*).—We cannot suggest any improvement. If any offensive smell arises from the solid contents, cover these 2 inches deep with earth.

FURZE, DERIVATION OF ITS NAME (*Inquirer*).—It is altered in spelling from its Anglo-Saxon name Fyrs, and this, probably, alluded to its being the earliest, *fyrst*, blooming shrub. Gorse is also an altered spelling of another Anglo-Saxon name of the same plant, *gorst*, and seems to refer to its evergreen state, *gærst*, being green as grass. Whin, another local name of the plant, is of old British derivation; *cithin* is the Welsh for Furze, and for anything full of prickles.

FORCING PUMP (*A. A.*).—Write to the Editor of "The English Mechanic and Mirror of Science," Tavistock Street, Covent Garden, London.

LAWN MOWERS (*W. L. M.*).—Any of the lawn mowers that are advertised in our pages, which are made by only the best manufacturers, are what we would recommend you.

RED SPIDER ON A GREENHOUSE PEACH TREE (*A Constant Reader*).—Cover the tree with a sheet like a tent, and put flowers of sulphur on a hot-water plate, and keep the water in it heated to about 160°, and have it under the tent.

FLOWER BORDER (*A Fastidious One*).—We do not see how you could do better than have your border filled with bulbs, Primroses, Daisies, and similar early flowers. Remove them to a reserve ground, and fill their places with Calceolarias, Geraniums, &c., for the summer. You cannot well have more than three strong lines on such a border, but you might arrange it in many ways, and every season differently. If you tell us your proposed plan, we will gladly give you our opinion. We cannot undertake to plant borders and gardens.

ARRANGEMENTS OF FLOWER-BEDS (*Ettal*).—The more simply the numbers of the groups follow each other, the more easily we read the proposed planting in a flower garden. Thus the centre of your garden is 1, but the fitness of the arrangement depends not on 2, and so on, but on 10, 11, 12, and 13. Now, planted as you propose the garden would look well, but in the majority of cases, with the exception of 14 and 15, each group or clump is made to depend on it still. Now it requires a high degree of taste to appreciate that mode, whilst almost everybody can see through pair or cross-planting—thus pairing 10 and 11, or crossing 10 and 13, and 11 and 12, and so with the others. We think that cross-planting would be most effective—thus, 6, 9, and 8 and 7, 2 and 5, 3 and 4, but that is a matter of taste. Thus 14 and 15 would be paired, and they would be better alike. The row of Snowflake round the purple in one case would be no improvement next the Pyrethrum. We can understand a centre of Snowflake in the middle of each bed, surrounded with Purple King in one case, and Arioste Verbena in the other, and both edged with Pyrethrum. With these remarks we think we shall do you the best service by letting you make another arrangement, and if you send a pencilled group or plan of the beds we will then criticise it. At present we will just look at the centre beds. The centre, 1, is to be Mrs. Pollock and Sunset, bordered with Echeveria. Then two beds round it are to be on the cross, 10 and 13, yellow and orange Calceolaria, and two others on the cross, 11 and 12, are to be, one a yellowish Tropœolum, and the other a yellow Pansy; so that the centre and four beds round it will, independently of their bordering, be chiefly yellow and orange. We think you can mix the colours better.

IRON PIPE FOR FLUE (*M. H. B. L.*).—We have little faith in your succeeding well in heating a small Cucumber house with an iron pipe for a flue, and still less if the pipe is less than 9 inches in diameter, for a small pipe is not only apt to get clogged-up, but to become too hot also, unless you take great care of the furnace. We would on the whole prefer a brick flue to an iron one. However, as you seem resolved to have one, and the house is nearly 16 feet long, we would have a small cesspool, say slightly larger than the size of the pipe at each end, for the ends of the pipe to go into, and these places, if covered with a tile, could be opened at any time, and a hard brush run along the pipe. We see no more faith in regulating draught in such a case by a close-fitting ashpit-door than in such proposed dampers.

APPLYING SEWAGE (*L. M.*).—Your most successful application of the sewage would be to all growing crops as well as to meadow land. As you say you cannot do that, the less common water that mixes with the sewage the better, and if that sewage be poured on all mixtures of soil, sods, parings of roads, &c., and slightly covered over every time with a little earth, you will have no unpleasant smell, and will secure a valuable heap of compost to cut down and cart on to meadow land in winter, where spread, bush-harrowed, and then rolled down, it will be sure to tell favourably on the grass crop. One of the richest heaps of compost we ever saw was placed like yours at the overflow of a sewage drain. The heap consisted of parings of roads partly, but chiefly of Couch Grass collected out of a field. A few loads of lime were added to hasten and perfect the decomposition of the Couch Grass. A few loads of soil in reserve thrown over the heap did all that was necessary in the way of deodorising it, and kept the best gases from escaping.

ROYAL BOTANIC SOCIETY.—"Last July (1871), I won the second prize for twenty-four Roses, three trusses of each (amateurs), at the Royal Botanic Society's Show, and although I have written to the Secretary, Mr. Sowerby, three times concerning it, I have not yet got my medal, nor has Mr. Sowerby had the courtesy to answer my repeated inquiries. Can you tell me if this is the usual way with the Secretary of the Royal Botanic Society, or is it not yet time to distribute the prizes? Surely Mr. Sowerby ought to put me right if I am in any way out of order in writing to him, or applying too soon.—W. FARRER, 10, *Crescent, Cambridge*."

WATERCRESS CULTURE (*Osbaston Hall*).—You can readily obtain plants from any stream where Watercresses grow, and make cuttings of the stems emitting rootlets. The trenches in which they are grown are to be such, that nearly a regular depth of 3 or 4 inches can be kept up. These trenches are 3 yards broad, and whenever one is to be planted the bottom is made quite firm and slightly sloping, so that the water which flows in at one end may run out at the other. If the bottom of the trench is not sufficiently moist, a small body of water is allowed to enter to soften it. The Cresses are then divided into small cuttings, with roots attached to them; and these are placed at the distance of 3 or 4 inches from each other. At the end of five or six days a slight dressing of well-decomposed cow dung is spread over all the plants, and this is pressed down by means of a heavy board, to which a long handle is obliquely fixed. The water is then raised to the depth of 2 or 3 inches, and never higher. Each trench is thus replanted annually, and furnishes twelve crops during the season. After every cutting, a little decayed cow dung is spread over the naked plants, and this beaten down by means of the rammer above mentioned. After the Watercresses have been thus treated for a twelvemonth, the manure forms a tolerably thick layer at the bottom of the trench, and tends to raise its level. To restore it to its original level, all the refuse should be thrown out upon the borders which separate the trenches from each other.

ANGLE OF MELON PIT LIGHTS (*J. W. L.*).—Your lights seem to have only a fall of 10 inches in 6 feet. Now, the proper incline for pit lights is 1 foot in 3 feet, or for a 6-feet width the front wall should be 1 foot, and the back 3 feet above the ground level. We advise you to take two courses of bricks

off the front wall, thus reducing it to 13 inches, and to raise the back two courses, by which means you will obtain the proper incline of the lights, and will not have any drip—that is, if the glazing be good. The fermenting materials must come quite up to the bearers of the lights, and have a slope corresponding with that of the lights, but at such a distance as to admit of soil and space for the growth of the Melons. The space at back for lining need not be emptied until the heat of the bed begins to decline, and then it should be filled with hot dung. We presume there is a like provision for lining in front of the pit; if not, there ought to be, and it should be filled first, following with the backing in the course of a fortnight, or when the heat of the front lining is getting low. It is not necessary to put a layer of turves, grass side downwards, on the dung before covering with soil. Your pit will accommodate six plants, two in each light, but we should plant irrespective of the lights, along the centre, and 9 inches from each end, and then you will have the other plants very nearly 18 inches apart.

Tritoma Uvaria Culture (*J. R. P.*).—It is propagated by division, by suckers, and by seeds. The first is done in spring when the plants are beginning to grow; by suckers in autumn or spring, in the former case potting and wintering them in a pit. Seeds may also be sown in spring in a hotbed, the plants potted-off singly when large enough to handle, and removed to a cold frame when well established. They should be shifted into larger pots as required, wintered in a cold pit, and planted out in spring. This plant requires a situation sheltered from high winds, and should have a good, rich, deep, loamy soil, well drained, and intermixed with a liberal amount of leaf soil and well-rotted manure, including sand if the soil is deficient in that material. Water them liberally with liquid manure in dry weather, and especially when the flower-spikes are beginning to appear. Mulch around the plant in autumn with partially-decayed leaves and short litter, and do not cut off the top or decayed leaves until spring.

Newly-planted Fruit Trees Pruning (*A Subscriber*).—The trees will need some kind of pruning, but it is difficult for us to say to what extent, as much depends on the present form of the trees, or that which they are intended to have. They should, however, be pruned, and at this time. Now is a good time to plant Strawberries. They should be well-rooted runners of last year and the four kinds we recommend are President, Sir Joseph Paxton, Dr. Hogg and Frogmore Late Pine.

Seeds from India (*S. W.*).—Crotalaria may be a stove annual, as C. juncea is one; Helicteres Isora is an evergreen stove shrub; Hypoxis are pretty small bulbs and may succeed in a greenhouse, but we do not know the species named. Try it in a stove first, and when you have duplicates you can try it in a greenhouse. Eruca alba requires a stove. Tatrapia is not known to us, and Cassi Flower is probably Cassine excelsa from Nepaul, and would do in a greenhouse. Lime will require a warm greenhouse or cool stove. Bauhinia tomentosa is a stove evergreen. Canna indica should be sown in strong heat, grown on, and when well established will succeed in a greenhouse. The last you name would be best sown and grown in a stove. Thunbergia is a perennial.

Mixing Lime with Mud (*T. C.*).—It is a great advantage to lay mud taken from a pond in a heap, and when it has dried sufficiently for working, turn it over and mix it with lime, in the proportion of about a cartload of lime to about ten of mud. It will not do to mix lime with the mud fresh taken from the pond, nor ought the mud to be put on the grass until it has laid at least six months.

Phlox Drummondi Sowing (*A Subscriber*).—There are a number of very fine varieties of this flower, which should be sown in a gentle hotbed now, pricked off about an inch apart when large enough to handle, forwarded in a gentle heat, and hardened off so as to plant out in May. Cinerarias for spring flowering should be sown in May, and Primulas at the same time. You may sow in June, but the plants will not be so large nor so good. Cabbage for late summer use should be sown early in April. Cauliflower should be sown at the same time and also at the beginning of May, whilst the 20th of May is soon enough to sow it for a late autumn supply. Cabbage for early summer should be sown about the middle of July and the 10th of August.

Camellia Buds Black and Falling (*C. B.*).—The Camellia buds sent are black at the points, which arises from a defective state of the roots and a low moist temperature. Repot the plant now, removing most of the old soil, and encourage fresh growth with a rather close and moist atmosphere of 50° to 55° at night. Provide good drainage, and a compost of the top inch of a pasture where the soil is a good, rich, light, sandy soil, and pot in this, chopped up rather small, without admixture of any kind, at the same time water abundantly. The plants when flowering, or swelling the buds for flowering, should have a temperature of 45° to 50° from fire heat.

Pelargoniums, Fuchsias, Verbenas, and Calceolarias for Bedding and Pot Culture (*R. A. P.*). — *Pelargoniums*—Golden-variegated: *Lady Cullum, *Lucy Grieve, *Red Admiral, *Sophia Cusack, *Goldfinch, and *Sophia Dumaresque. Gold and Bronze: *Egyptian Queen, *Ossian, and *Neatness; and for beds, Beauty of Calderdale, Luna, and Perilla. Gold-edged or Golden-leaved: Jason, Crystal Palace Gem, and Golden Chain. Silver-variegated: Italia Unita, Mrs. John Clutton, and Prince Silverwings. Silver-edged: Flower of Spring, May Queen, and Snowdrop, the last three for bedding. Plain-leaved or Zonal Bedding Sorts: Bayard, Jean Sisley, Vesuvius, Waltham Seedling, Vesta, Mrs. William Paul, Evening Star, and Duchess. Double-flowered: Impératrice Eugénie, Marie Lemoine, and Wilhelm Pfitzer. *Fuchsias:* Avalanche, Fairest of the Fair, Corallina, Purple Prince, White Lady, and Mr. Lyndoe. *Verbenas:* Ada King, Butterfly, Crimson King, Edwin Day, Joseph Sanders, Kate Lawden, Le Grand Boule de Neige, Mauve Queen, Mrs. Day, Rev. S. R. Hole, Rev. J. Dix, and Rev. P. M. Smyth. *Calceolarias:* Aurea floribunda, Prince of Orange, Beauty of Montreal, Sparkler, Superb, and Yellow Dwarf. Those marked with an asterisk not suitable for bedding, but all the others, except Fuchsias, are good for bedding, also pot culture. We cannot recommend dealers, and we can only refer you to our advertising columns.

Roses for Early Flowering in a Conservatory (*E. F. W.*).—Maréchal Niel, La Boule d'Or, Madame Willermoz, Adam, Souvenir d'un Ami, Alfred Colomb, Charles Lefebvre, Baroness Rothschild, La France, Général Jacqueminot, Countess of Oxford, Princess Christian.

Insects Attacking Flowers of Orchids (*C. J. W.*).—The beetle which has devoured the flowers of your Lycaste, Cattleya, and Odontoglossum, is the omnivorous Otiorhynchus sulcatus, as destructive in the perfect as in the larva state. You must search for it after dusk with a lanthorn, having previously laid down a sheet under the plants, upon which the beetles, alarmed by the light, will fall.—I. O. W. Our correspondent says—"The only way which we destroy them is by well looking over the moss that is growing on the top of the pots in which they hide themselves, and by the aid of a lamp at night when they are committing their depredations, which are equal to that of the cockroach."

Insects (*Gardener, Wandsworth*).—The insect attacking the Vine is a Weevil, Curculio picipes. Spread a sheet under the Vine at night and shake the Vine.

Names of Plants (*S. E.*).—Your "English Caper," is Euphorbia Lathyris. We know it is frequently used as you say, but the tendency of the whole race of Euphorbias is to be deleterious to the system, if not actually poisonous. We deprecate its use, but think its evil qualities are much corrected by the free use of salt in preparing it, and subsequent thorough saturation in vinegar. (*R. B. L.*).—1, Pteris straminea; 2, Aspidium capense; 3, Asplenium flaccidum; 4, Platyloma rotundifolia. (*Camjee*).—We should suppose it to be Beaucarnea recurvata. (*T. Harrison*).—It is the Japan Quince, Cydonia japonica. (*M. Riches*).—The blue flower is Omphalodes verna, the Fern Polypodium lineare. (*E. D.*).—The Butcher's Broom does at times bear berries in this country, but rarely. As to the propagation of Begonias, all the descendants of Begonia Rex may be propagated by laying a vigorous leaf on a surface of sand in heat, pegging down the principal nerves or veins, which it is advisable to snap across at intervals. All the shrubby sorts are most readily propagated by cuttings in heat. In reference to Begonia "Elegance," we do not know it, and think it is one of the hybrids from B. Rex. By some inadvertence the Dianthus flower was lost before we determined what species it was. (*B. Smyth*).—The red-flowered Maple, Acer rubrum. (*E. A.*).—1, Pittosporum umbellatum; 2, Sempervivum (Æonium) barbatum; 3, Pittosporum undulatum; 4, An Erica in young bud; 5, Teucrium fruticans; 6, Staphylea pinnata. (*R. T.*).—1, Niphobolus lingua; 2, Nephrolepis exaltata; 3, Nephrodium decompositum, var., (Lastrea glabella). (*Pinery*).—Cupressus sempervireus. (*G. H. Cooke*).—It is Epimedium macranthum.

POULTRY, BEE, AND PIGEON CHRONICLE.

EGGS.

In a recent issue of the *Chicago Times*, we find the following interesting collection of facts in relation to this important article of human diet.

Eggs were used by the ancient Hebrews, and there are frequent allusions to the gallinaceous tribes both in the Old and New Testaments. The people were also familiar with the Ostrich, Partridge, and other egg-producing animals. Job showed that he understood something about eggs when he said, "Is there any taste in the white of an egg?" Moses, Isaiah, and Jeremiah make mention of the produce of the hen in a manner which leaves no doubt as to their knowledge of the pleasures derived from eating eggs.

Use of Eggs.—In medicine, the shell is used sometimes as an antacid, and the white is employed as an antidote to corrosive sublimate and the salts of copper; and it is also used for clarifying liquors and syrups. But the chief use of the egg is as food for the millions, being easily cooked and very nutritious.

The Egg as Food.—The relative weights of the portions of the egg as given by Dr. Thomson are: Shell and membrane, 106.9; albumen, 604.2; yolk, 288.9. About one-half of the entire weight may be regarded as nitrogenous and nutritious matter. This is a greater proportion than that of meat, which is rated at 25 to 28 per cent., showing that, as food, a pound of egg is worth nearly 2 lbs. of meat. The white of the egg, from its tendency to coagulate into a hard, indigestible substance, is apt to disagree with the stomachs of invalids, when the yolk may be harmless. Raw eggs are more wholesome than boiled. The longer an egg is kept the more indigestible it becomes, and hence the desire for new-laid eggs.

Size and Weight. — The largest-sized eggs of which any accounts are given were found in 1850, in Madagascar. They belonged to a bird now extinct, and to which M. Saint-Hilaire has given the name of *Æprornis maximus.* Two of these eggs are preserved by the French Academy. One of them is 13½ inches in its longest diameter, and 8½ inches in the shortest. Its capacity is 8½ quarts—six times that of the Ostrich's egg, and equal to 148 hens' eggs, or 50,000 of those of the Humming Bird. The chicken which laid these eggs was 12 feet high. No sale could be found for such eggs, and the fowls producing them were wisely allowed to become extinct.

The specific gravity of a new-laid hen's egg is from 1.08 to 1.09. By keeping, the weight diminishes, from evaporation of the water and the substitution of air through the pores of the shell. This diminution has been observed to continue until an egg weighing originally 907.25 grains has fallen to 363.2. The weight depends, of course, more upon the size of the egg than its age; and there is such variation that it is a wonder they are not sold by weight. "An egg is an egg," everybody says; and the facility of counting any given number at 12 cents per dozen will probably always render it impossible to make a change in the manner of selling. A dozen eggs from a Brahma fowl will weigh sometimes 26 ozs., while the same number from a common dunghill fowl will not exceed

20 ozs.; and in some cases eggs in the market will not weigh over 15 ozs. to the dozen. No law can be made to reach the fowls and compel them to lay eggs of a uniform size; and if the attempt were made, there is no security but that a hen-convention would adopt resolutions not to lay any more eggs until the obnoxious bill was repealed. But the State regulates the weight of a bushel of grain and a loaf of bread, and why not say how much a dozen eggs shall weigh—say 22 ozs.? Such a law would protect consumers, and at the same time do a great deal towards improving the stock of poultry in the country. The poultrymen would not allow it to be said that they had to give fourteen eggs for a dozen, when by the substitution of the Brahma, Dorking, Houdan, Black Spanish or some other choice breeds, they could sell eleven eggs for a dozen.

Bad versus Good.—While there may be, and undoubtedly is, a difference in the flavour of eggs of different breeds of fowls, and also in those of the same fowls at various seasons of the year, there are really only two kinds of eggs, the good and bad. These terms admit of qualifications. An egg is good so long as it remains in a state fit to use for cooking purposes; but the egg which the baker will often use is often wholly unfit for the table.

The Egg Trade.—The demand for eggs as an article of food has given rise to an immense trade in furnishing supplies required by large cities; and by means of railroads and steamboats they can be transported long distances with safety and dispatch. There are thousands of dollars invested in the business in this city, and a great deal of attention has been given to the means of

Transportation.—Until within two years past, it was customary for country dealers, who receive eggs from the farmers, to pack them in hay, cut straw, or oats, in barrels or half-barrels. Two years ago, a man named Josef, in New York, invented a carrier, consisting of covers in a box, so made as to form a cavity for each egg. This carrier is very expensive, and has not come into general use. Another man in the West soon brought out an improvement, in which the divisions are formed by pasteboard. These patent carriers answer very well for carrying eggs, and render their counting and delivery easy work, but they are expensive, costing from 90 cents to 5 dols. each. Some of the egg-dealers in this city have a thousand of them in use; but while they use them, nearly all give the preference to eggs packed in barrels in dry old oats.

The carriers hold from thirty dozen to sixty dozen, while eighty dozen to one hundred dozen can be packed in a barrel with safety. When eggs are to be sent a short distance, without a transfer *in transitu*, they can be sent in half-barrels, packed in hay; but oat straw, chaff, or sawdust should not be used if anything else can be found. Paper can be used with good effect, but is somewhat troublesome. In using oats, 2½ bushels are generally used for a barrel, and the purchaser allows 75 cents for the oats.

Consumption of Eggs.—The consumption of eggs of course depends somewhat upon prevailing prices, but not so much as one would suppose, for low prices prevail when eggs cannot be depended upon, and most people help to increase the proportion of the supply to the demand by refusing to buy. In most families, eggs are eaten as a rarity, and appear on the table as a dainty, like cheese; and at most seasons of the year they are looked upon with disagreeable suspicion. The people of other countries like eggs, and in Great Britain the home production is put down at 75,000 tons, valued at 15,000,000 dols. The importations in 1857 amounted to 126,818,600. In Paris, during the year 1853, it was estimated that 175,000,000 eggs were consumed, being 175 for each person, and costing each person 1.35 dols. The people in the provinces ate 350 eggs per head during the same time. There are plenty of men in Chicago who never eat less than two eggs per day the year round, and it will be found that they are strong, healthy people. Archdeacon & Russell, of this city, use a great many by preserving them with ham. At the present time there are no means at hand for arriving at the number of eggs consumed in Chicago, but it must be enormous if it bears any relation to the receipts. Every grocery deals in eggs, and most of them receive more or less from the country.—(*National Live-Stock Journal.*)

TAKING TO BRAHMA KEEPING.

Many times of an evening, as we sat by a cosy fireside after the business of the day, would the "gudewife" and I discuss the most profitable use to which we could put our few yards of freehold; but the knotty question was settled for us by the unexpected and somewhat premature arrival of a hamper containing a brood of Brahma chickens about three months old. Curiously we peeped into the basket to have our first look at our living treasures; and with what tender care—but, oh! how clumsily—we handled them, tongue can scarcely tell. But they had travelled long and far, and surely they must be woefully hungry and thirsty. Now came the rub. What should we give them, and how should we feed them? The "gudewife" suggested bread soaked in ale. "Capital," said I, and quick as thought the compound was prepared, but to our dismay they wouldn't touch it, despite our anxious efforts of cajolery and compulsion. We had to give it up, and expected certainly nothing less than death for the whole troop by the following morning, when we gave them an early call. They were, however, all right, but, oh! what objects! "Aye," said the wife, "what on earth are they?" "Don't know," said I, "except they may happen to be scarecrows." Such lanky wretches I thought I had never seen. Call these Brahmas! Here are things that have no likeness to any mortal fowl I ever saw. Remember, I had never set eyes on a Brahma before, and was so "well up" in their natural history, that when my wife, with pardonable and natural curiosity asked me their sex, having, no doubt, a keen eye to the egg question, I unhesitatingly replied, "What are they? Why, they are all pullets, to be sure;" whereas, in fact, they were nearly all cockerels!

However, I was now fairly started on the expedition, determined to explore all the mysterious depths and scale all the wondrous heights of poultry knowledge; and though I set out on the journey with uncertain step, I gathered courage as I proceeded, spent the midnight oil in pouring over poultry lore, became a subscriber instanter to your Journal, and resolved to master my task. Well, notwithstanding some ludicrous mistakes, my wife and I persevered, and I need hardly tell your readers with what interest we watched our lanky scarecrows gradually feather, and settle down upon their legs, becoming in due time, in our eyes at least, unapproachable in beauty and excellence; and wasn't I proud when, on the appearance of the first pair of cockerels on my supper table, an agricultural friend seriously asked if they were a pair of young Turkeys? Enough to say that quantity and quality were admirably combined.

But who shall describe our sensations on the appearance of our first egg? I do not know which was more astonished, the pullet that laid it and afterwards looked so curiously at it, or ourselves. Never was seen such an egg before as this. I must not tell you all the adventures of that never-to-be-forgotten egg or you'll laugh. Well, let those laugh who win. My three pullets laid beautifully all through the cold and frosty winter their average of six eggs per week each, despite snow 12 inches deep on the ground, so that we congratulated ourselves on having possession of a splendid breed of birds that were not only liable to be taken for young Turkeys at the table, but could produce a good supply of eggs when our poultry-keeping neighbours had none.

The winter passed away, but in the meanwhile I had invested in, amongst other books, "The Brahma Fowl," by Lewis Wright, after reading which the fever set in hot and strong. The birds I possessed, and which I had thought so superlative in quality, began to pale their light before the visions of roseate hue in which I indulged as I contemplated the prospect, as yet but faintly dawning, of having exhibition birds, and then—and then—yes, and then a first at Bingley Hall, who knows? But the prudent, careful, better-half arrests for the moment the airy visions, and reminds me, "Handsome he that handsome does;" and "surely we may say that of our first stock." "Aye, but you just read that book of Lewis Wright's," I said in apologetic tones, "and tell me what you say then." She did read it. Need I tell you what followed? Three sittings of eggs booked at a guinea each; but we scarcely ventured to speak of it, it seemed so awfully extravagant.

I will not tire your readers with details of further experience, except to say how gradually and surely we yielded to the fascination, and of all birds Brahmas *are* fascinating, so gentle, so noble, and, when properly cared for, so productive of both flesh and eggs. To my mind there is no prettier sight in the poultry world than a batch of first-class Brahmas on the bit of grass by the side of the house; the fine, majestic, fearless-looking cock, a very king of birds. Our feathered tribe grew and increased, but if our first egg produced such a sensation as that which I have just described, the appearance of our first brood of chickens, seven in number out of nine eggs, was simply overwhelming. We got over it at last, and then set earnestly to work, studied the peculiarities of the birds as they grew, fed and cared for them well, combining what we were beginning to consider our practised judgment with the information we could derive from the best authorities. We felt ourselves fairly within reach of the climax of our ambition on being informed by a very knowing poultry friend that we possessed some most promising "exhibition" birds; and as a comment on the soundness of his judgment, I may mention that, to our no little satisfaction, our

stock was afterwards represented in high positions amongst prize-winners at the public exhibitions. So now, being blessed with somewhat hopeful dispositions, we place before ourselves the cheery prospect of getting in due time within the charmed circle of successful exhibitors, having weeded out from our breeding pen all the birds of a doubtful character, and retained only a small but very choice stock, which "self and partner" complacently anticipate will win renown in the sphere within which poultry interests reign supreme.

Now, having given for the edification of your readers a very fair account of the rise and progress of a would-be successful poultry-breeder, permit me to call the attention of "the fancy" to a point which has more or less perplexed me in reference to the judgments passed at some of our larger shows. I have scarcely learnt to understand as yet how it is that birds first, perhaps, at one exhibition, are "nowhere" at another, in cases which evidently cannot be attributed to a falling-off in condition, and where the competition is almost between the same birds. It has occurred to me as being very desirable, if it can be accomplished, to select from the highest ability in the kingdom a committee of well-qualified judges, who should prepare and publish at a moderate charge detailed particulars of the points of excellence required in each class of fowl, so that all breeders may know to what standard to breed, and thus avoid many of the uncertainties which at present exist in the judging. I have no doubt the suggestion, if a practicable one, would promote the interests of the "craft" if acted on.

And now especially as to the question of hocked birds. If it be clearly decided that all hocked birds are to be disqualified, though they may be perfect in other respects, let exposure and disgrace follow all cases of plucking, and let judges carefully examine every feathered candidate for honours, irrespective of his or her quality in other respects, whether good or bad. Let the iron heel come down sternly on all fraudulent practices in this respect; and when it is clearly understood by all exhibitors that every bird will be thus closely examined, and the consequences referred to inevitably ensue on discovery of fraudulent plucking or trimming, depend on it the practice will soon disappear, and that which casts its blighting shadow on an innocent and even laudable pastime will be most certainly stamped out, to the delight of all honourable exhibitors.

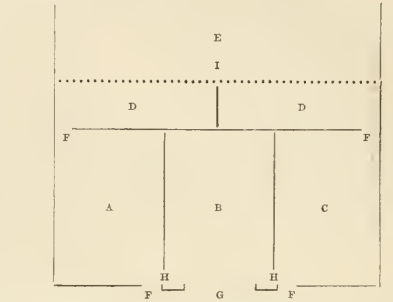
And now, having said what I had it in my heart to say, to while away an hour of a dark and wintry night while the storm fiend howls without, I conclude by respectfully and most cordially wishing an increase of prosperity for "our Journal" and making an acknowledgment of my indebtedness to its various contributors. At the same time I would express my confident assurance that, as in the present, so in the future, one of the highest positions in the world of poultry will be accorded to the gentle, the profitable, the really handsome—Brahma.

FOWLS FOR PROFIT, AND AS A MEANS OF SUBSISTENCE.—No. 4.

Poultry House.—Most people, if living in the country, have a building of some description attached to their house, and which with a little ingenuity, at a trifling outlay, may be made available for a poultry house. I am referring to the cottager desiring to do all things properly, but at as little cost as possible. If, however, a poultry house must be erected, I would advise that it be made of rough wooden planks, tarred outside, with the roof, which must slope to allow the water to run off, covered with roofing felt. This will form the cheapest and warmest house. The boards must overlap each other, and care must be taken to build them closely, so that all draughts, so injurious to fowls, may be avoided. The door should face the south-west.

The size of the house will depend on the number of fowls kept, and whether they are confined or not; if they have a run, a house 20 feet square will accommodate fifty hens. It should be divided into two parts, one for roosting and laying, and the other for hatching. Where two distinct breeds are kept the roosting divison must be again divided, as the male birds must be allowed their liberty during the evening, and in the morning before the henwife makes her accustomed visit. Where many hens are kept a shed must also be constructed to shelter them when the weather is cold or wet; this may be made with a sloping roof, thatched with gorse or straw, and the same material may also compose the two sides, the hen house forming the third. The cheapest hatching boxes are of wickerwork, when they can be made by the farmer himself, otherwise wood is the cheapest material. The laying nests may be made of anything that presents itself as suitable, but there must be no lack of them, as neglect in this particular may cause a hen to lay away. The perches must be low for large and heavy birds, as they are apt to become bumble-footed if they alight often from a high perch; 2 feet from the ground will be sufficiently high. Where Hamburghs are kept, a higher perch may be given if thought advisable.

It will be necessary to cut off a portion of the shed for the use of the cocks during the day—say 2 feet wide from end to end, and with a division in the centre to keep the two breeds separate. Should the birds prove quarrelsome, a slip of wood can be inserted between each of them, but I do not anticipate any trouble in this particular. In these compartments they must be daily confined, and their liberty restored to them only morning and evening, when their hens are in their appropriate roosting houses. See annexed plan.



A. Roosting and laying division for Hamburghs.
B. Sitting house.
C. Roosting and laying division for Brahmas.
D. Cocks' apartment during the day.
E. Shed.
F, F. Small sliding doors for fowls.
G. Main door.
H. Doors to side apartments.
I. Wire netting for cocks' division.

A heap of small ashes, gravel, and mortar should be kept in one corner of the shed, that the fowls may have the benefit of a dust bath when deprived of that pleasure by rain. The best floor for a hen house is made of earth, small stones, and ashes well beaten together. Bricks are the worst flooring material that can be used. I must impress on the mind of my readers that perfect cleanliness is absolutely essential to the well-being of poultry, and that where this is neglected no one can expect to reap the profit here promised. Ventilation is equally necessary, and where fowls are entirely confined it must be carefully attended to. The best place for a ventilator, as also for a window pane to admit the light, is at the top of the house. A stove must be used in cold weather, and should be so placed as to heat all the different compartments, including the shed. A cheap portable stove may be made by any ironmonger to suit the purchaser's requirements for about 15*s*. The heat of the house should be about 60°, and be kept as equable as possible. Wood is the cheapest material that can be used to burn in the stove; indeed, its cost can hardly be counted.—Vincent Skinner.

WALSALL POULTRY AND PIGEON SHOW.

Although it was so late in the season the Committee of the Walsall Show succeeded in bringing together an admirable collection, and, we can add, the general arrangements were unusually good. The Guildhall Assembly Room at Walsall is well adapted for the purpose of such an Exhibition, and with a little more local support it is certain that the Walsall annual Show might equal most others.

Cochins were a first-rate class, any variety of colour competing. The first and third prizes were awarded to the Buffs of Mr. H. Lloyd, jun., of Great Barr; the second to a capital-feathered pen of Partridge-colored belonging to Mr. Joseph Stephens, of Walsall. In *Brahmas* the Show was limited, the first and second prizes being awarded to Dark birds, and the third to Light-feathered. *Spanish* fowls, as usual at Walsall, were of very high character, and were not only so in the Spanish class, but also in the Selling class, in which latter competition were to be found fowls of this breed that would be a credit to any show. The *Game* class was a weak one, with the exception of the first-prize pen. Spangled *Hamburghs* were a remarkably good feature in this Exhibition; Golden-spangled taking the first and third prizes, and an excellent pen of Silvers the second. In the class for Pencilled Hamburghs the Golden were decidedly superior to the Silver variety. In the Any other variety class a pen of Grey Dorkings were first, and also won the silver cup for the best pen of fowls in the Show, closely pressed, however, as to the latter premium by pen 39 of Golden-spangled Hamburghs, than which we rarely see a better pen at even much more pretentious shows. Black Hamburghs took the second prize, Sultans the third. The Game *Bantams* were decidedly poor, but the Sebright and Black Bantams were praiseworthy. In an open *Duck* class the prizes were given in the order named—to Carolinas, Aylesburys, and Rouen Ducks.

The Show of *Pigeons* was excellent, Carriers and Pouters especially so, a grand Yellow of the latter breed taking the cup for the best pen in any of the Pigeon classes. Antwerps and Dragoons constituted capital classes, and the unusual class for "Horsemen" brought a very large but irregular entry.

Rabbits were a strong feature of the Show, the heaviest of these weighed 15 lbs. 14 ozs., and even the second-prize was beyond 15 lbs. The Rabbit that succeeded in carrying off the silver cup was a Fawn, that measured in the ear 23 inches by 5¼ inches. A few choice varieties of Rabbits were also shown in the class for "all properties;" a remarkably good Grey one here took possession of the silver cup. The day being fine we could have hoped for a more general attendance, still we believe it was equal to the Committee's anticipations.

COCHIN-CHINA.—1, 3, and *hc*, H. Lloyd, jun., Great Barr. 2, J. Stephens, Walsall. *c*, T. Amphlet, Walsall.

BRAHMA POOTRAS.—1, J. Adkins, Walsall. 2, J. Birch, Walsall. 3, J. Hicklin.

SPANISH.—1, H. Cooper, Walsall. 2, J. Butler, Walsall. 3, J. Nash, Walsall. *c*, J. Clewes, Walsall; H. Cooper.

GAME.—1, J. Nash. 2, J. Johnson, Walsall. 3, W. Meanley, Walsall.

HAMBURGHS.—*Spangled.*—1, W. Meanley. 2, J. Coleman, West Bromwich. 3, J. Bates, Walsall. *hc*, G. Brawn. *c*, W. H. Duignan; H. Mason, Walsall. *Pencilled.*—1, H. Mason. 2, W. Meanley. 3, J. Coleman.

ANY VARIETY.—1, Cup, and 3, J. Wilkinson (Grey Dorking and Saltans). 2, W. Meanley (Black Hamburgh).

BANTAMS.—*Game.*—1, Miss A. Adkins, Walsall. 2, Master W. Arthur. 3, J. Adkins. *Any variety.*—1, J. Clewes, Walsall. 2, H. Mason. 3, T. Amphlet. *c*, S. Hitch, Walsall.

DUCKS (Any variety).—1, H. Mason (Carolinas). 2, Mrs. Ladbury, Aldridge (Aylesburys). 3, W. Meanley (Rouen).

SELLING CLASS.—1, J. Stephens (Spanish). 2, J. Middleton (Golden-spangled, Hamburghs). 3, H. Mason (Golden-pencilled Hamburghs). *hc*, H. Cooper (Spanish); J. Bayley (Spanish); J. Coleman (Hamburghs); J. Bates (3). *c*, H. Cooper (Spanish); W. H. Duignan (Silver Hamburgh pullets); J. Butler (Hamburghs) (2); T. Amphlet (Bantams).

PIGEONS.

CARRIERS AND POUTERS.—*Cocks.*—1 and Cup, J. Coleman. 2, J. Beebee Walsall. 3, T. Mills, Walsall. *hc*, S. A. Cooper, Walsall. *Hens.*—1 and 3, S. A. Cooper. 2, H. Beebee. *hc*, J. Beebee; W. Booth, Walsall. *c*, T. Mills, Walsall.

ANTWERPS.—1, C. Allsop, jun. 2 and 3, W. Meanley.

DRAGOONS.—1 and 3, C. Allsop, jun. 2, T. Mills, Walsall.

HORSEMEN.—1, S. Walker, Walsall. 2, J. Nash, Walsall. 3, W. Booth. *hc*, J. Nash; W. A. Miller, Walsall; J. Middleton. *c*, J. Woolley, Walsall.

TUMBLERS.—1, J. Clews. 2, J. Duncan, Walsall. 3, J. Birch, Walsall.

ANY VARIETY.—1, W. Coath, Walsall (Fantails). 2 and 3, S. A. Cooper. *hc*, T. Mills (Owls); J. Nash (Turbits); S. A. Cooper (Owls).

SELLING CLASS.—1, J. Adkins. 2, J. Duncan, Walsall (Ponters). 3, H. Cooper.

RABBITS.

LENGTH OF EAR.—1 and Cup, W. H. Webb, jun., Deepfields. 2, T. Millington, Wednesbury. 3, J. Pritchard, Wednesbury.

WEIGHT.—1, J. A. Gilbert, Walsall. 2, T. Amphlet. 3, W. Jones, Wednesbury.

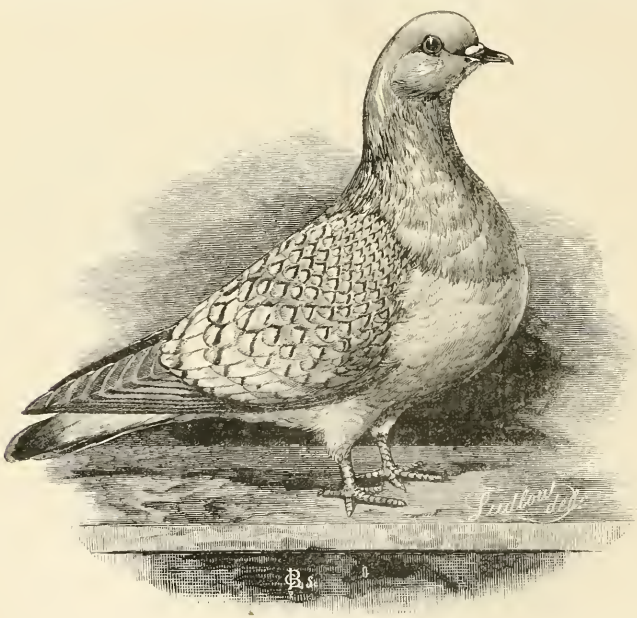
ALL PROPERTIES.—1, Cup, and 3, J. Millington. 2, J. Pritchard. *hc*, J. C. Garrington, West Bromwich; F. Smallman, Walsall; W. Smith, Walsall.

SELLING CLASS.—1, H. F. Wilde, Wednesbury. 2, S. Heap, Walsall. 3, Hunter & Dewson, Walsall. *hc*, F. Smallman; J. Russell, Walsall. *c*, T. Amphlet.

JUDGES.—*Poultry:* Mr. E. Hewitt. *Pigeons and Rabbits:* Mr. Hewitt and Mr. Yardley.

THE URAL ICE PIGEON.

THIS beautiful variety of spangled Pigeon is a product of Germany, and was imported many years ago in large numbers for one of the members of our Society. Many sub-varieties have subsequently found their way into this country, some of which



The Ural Ice Pigeon.

are of a pale silvery blue, without wing-bars, and without being pencilled or spangled, and are designated Plain or Self-coloured Ice Pigeons. Others have wing-bars, and are long-muffed or feather-legged. This sub-variety occasionally is to be found spangled, but too often imperfectly so.

The whole plumage of the Ural Ice Pigeon is of a very pale silvery blue, with the exception of the tips of the tail and flights, which are a dark slaty colour. The wing-bars are formed by neat black zigzag lines, and the pencilling or spangling on the shoulder is neatly defined. The eye is of a hazel colour, and the general contour of dove-like appearance, but in size much larger. The neck should be of graceful formation, with a slight infusion in the hackle feathers of a dark greenish tinge, showing a various iridescence. The mandibles are slightly curved, and of a bluish-black colour; the feet and legs when not clothed should be of a coral red.

The Ice Pigeon is naturally of a wildish disposition, and a very high flyer, but soon becomes docile, and accustomed to locality, more especially if there are gardens, where it will roam undisturbed for hours together.

For country amateurs this variety is recommended, being a good breeder, feeding and rearing the young moderately well, and generally breeding true to feather.

The subject of the engraving was one of a pair that appeared

in the front ranks at the late Birmingham Show. Some very true specimens of the kind are in the possession of J. S. Adcock, Esq., of Bradford.

We are told that in their native country these Pigeons are bred indiscriminately, and mated-up and imported into England in pairs. A flight of the Ural Ice Pigeons on a bright summer's day has a novel appearance when the rays of the sun shine on their delicate plumage, showing the pale silvery hues, which could not fail to please the eye of the most fastidious fancier. This Ural Ice variety of Pigeon has figured most prominently at many of the leading shows, being less common and more graceful than the plain, long-muffed variety.

The Siberian or Russian Ice Pigeons are similar to the Ural Ice, but more delicate in their markings. They received their appellation from a well-known retired German fancier and keeper of these varieties.

Many good specimens of Ice Pigeons are to be found with orange and gravel eyes, which are equally admissible with the hazel eye, yet this colour is more frequent. Some have been seen with pearl eyes, though rarely; the latter would, we think, much enhance their value, from the fact that such would be more in keeping with these delicately-coloured inhabitants of the dovecote.—Birmingham Columbarian Society—J. W. Ludlow, *Secretary*.

SILVER DRAGOONS' BARS.

I believe it will be admitted by all breeders of experience that it is a difficult matter to breed Pigeons of any kind true to the feather points (of course, in thus writing I except self-colours), and that every thrown feather short of the true standard of any bird—say, for example, "close cut" of a Baldhead, "flight" of a Beard in either of the disputed quantities, "crescent" of a Pouter, or the "handkerchief" of a Tumbler—can be bred easily in comparison to the difficulty experienced in breeding the "point" true. From an artistic point of view it can be shown, and would be admitted by all (when the difference between two birds is pointed out, one true to the standard of points, the other not, although nearly so), that there is greater truth in the lines of the true bird, that they are more pleasing to the eye, and consequently are correct. Almost every man can feel and appreciate the beauties of correct as compared with incorrect lines, and harmonious from inharmonious colours. I may illustrate this from a Pigeon.

I have given much attention to Pouters, and nothing but the ill-treatment to the real and true Dragoon has grieved me as a fancier so much as the ignorant way in which this bird has for some years past been bred by many, judging from birds I have seen exhibited, and others I have seen which have won prizes, as I have been told, at different shows.

A Pouter true to the standard is, artistically speaking, the most beautiful of all Pigeons in feather and shape, for the bird as a whole is entirely made up of "natural curves," which are the most agreeable of all lines to the sight; and if dissected, each point of shape and feather will be found to be a natural curve; the variation of a single feather from the true standard in any one of the dissected parts will destroy the beauty of the curve, and show so plainly that everyone, fancier or not, can detect the departure from the true line, and would say its beauty is marred by it. The ten flight feathers of a Pouter's wing should be white; the tip of the first from the secondaries) should be just seen above them, and the other nine in gradation above that, presuming the wing closed. It is obvious that the line of the curve of the secondaries would be seen sharp and clear; but if the bird had but *nine* white feathers in the flight, the tenth, the first from the secondaries, being a dark one, the line of the curve of the secondaries would not be sharp, but irregular—as it is termed, "broken"—by reason of the end of the dark flight feather projecting above the curve of the secondaries, thereby spoiling the truth of the curve. This is a matter which does not require a fancier's knowledge to decide upon; it is evident to all, that the natural beauty of the curve, by being broken, is destroyed. I could show how the slighest known deviation from the standard spoils every other "point," were it necessary, but it is not so, and I have only introduced the example of this well-known point in the Pouter to help my argument as to the proper colour of a Silver Dragoon's bar. But if I have succeeded in showing impartial fanciers, as I trust I have, that the most difficult point to arrive at is the true "point," I shall have advanced my argument; for all will also admit by like reasoning that the most difficult colour to breed—the one showing the most pleasing contrast, the one which tries man's art as a breeder most to breed, and when bred gives the most pleasing because most naturally correct effect, is the true colour for the "point."

Mr. Allsop states that in "breeding Silvers it is next to an impossibility to obtain the black bar." It is on this presumed difficulty to breed black bars, and not because that colour does not harmonise or show the greatest beauty of contrast of colour, that Mr. Allsop bases his opinion that "brown bars," are correct for a Silver. This, I believe, is the correct interpretation of his meaning, and I wish to be correct.

Coming now to my main argument. It is well known to breeders that the tendency of all Pigeons is to "soften" in colour; this tendency the breeder uses for all his purposes of feather-breeding, correcting it when falling off from what he wants by crossing-in a harder one, thereby, as it is termed, strengthening it, and generally using this inclination to change to alter any colour if required. But for this natural tendency man could not have done with Pigeons as he has done. It is this which makes breeding a Pigeon to the standard of feather points for its breed so difficult, requiring constant attention and thought from the breeder to attain the desired result. Thus, Blacks will often soften-off to White, Red to Yellow, Blue to Silver, and Silver, by continual breeding without strengthening the colour, softens off to a very pale shade, with a dun, or, as Mr. Allsop calls it, a "brown bar." Many other changes could be enumerated, but these are prominent ones, well known, and sufficient for my argument.

Thirty or forty years ago we had no Pigeon shows as we have now; the bulk of Dragoon fanciers then cared more for the goodness of the bird as a "homer" than for breeding to particular colours. Still experience has proved to flying men that as a rule, to which there are of course exceptions, birds of certain colours are best for certain journeys, and are better "homers" than others. For example, no experienced flying man would expect to do any good in homing with Blacks, Reds, Yellows, or their Pieds, and little better with Whites. He would not choose a Red, Black, or Iron Grizzle, or a very light Grizzle for hard work; he would know that for that purpose he must look among the Blue Pieds, choosing a "helmet-headed" one in preference to a "Crescent" Pied, the Blue Grizzles (the darkest for preference), Chequers, and Blues. The last-named colour was always allowed by everyone to be good, and by many considered the very best, because so many birds of that colour were to be found among the hardest workers, were particularly light-hearted, and on that account stood continuous heavy training without getting the sulks. Therefore Blue had the call in flying men's opinions, and was for flying more carefully bred. Now this colour was properly divided into three divisions, the more usual and common one being a hard, clear, dark Blue, properly speaking the right blue; the Soft Blue; and the Sooty Blue. The Soft is the result of breeding too much with the "clear dark," without strengthening the colour. As these Soft Blues are bred together the blue still further pales, and the rump becomes white; but as, while this is going on, the contrast of the black bars on the lighter blue is heightened, the colour of the bird is very pleasing, leading to the common exclamation, "What a beautiful blue!" It is the contrast that shows this. The bars of these birds are always good; it is because the heightened contrast makes the edges of the bars show "sharper," as the clearness of the line is defined. It is from these Soft Blues, and chiefly from the white-rumped ones, that Silvers are thrown, the colour undergoing a still further process of softening. But up to this time—the Silver result—the blackness of the bar has not decreased, and it is this blackness on the Silver showing so sharply defined on the soft, I may almost say liquid silver, that makes these birds so beautiful as they are. Now to prove that this is the result of "softening," I can appeal to the experience of hundreds. The weakest bird in the nest is considered to be the hen; if one out of the two dies in the nest, the survivor is almost to a certainty the cock, and in nearly every instance when a Silver is thrown from two Blues it is a hen; it is a great rarity to have a cock thus thrown.

It was noted by "flying" men that Silvers were sensible birds, generally very sharp flyers, and on this account many kept them for short spins where speed was the great object. It must be distinctly noted that, because there were no shows in those days, men had no inducement to breed birds to a particular colour beyond what I have described as a "flying" motive; if they had one they would very soon, instead of accepting what Mr. Allsop says about the "impossibility," have bred them with black bars thus: Silvers are bred from Soft Blues; match Silvers to Soft Blues, thereby further softening the colour. Provided no Silver cocks are thrown for two or three generations—a not improbable result—still keep breeding the *last*-thrown Silver with a Soft Blue, choosing that one *last* thrown from the softest-bred birds, and in a short time not only must cocks of the right colour be produced, but the colour will be gradually bred to a standard, one which would throw cocks regularly as it did hens. During this time also the black bar is kept, because of the amount of blue there is left in the colour; and the colour, thus being set firm, would only need to be kept from further softening by judicious crossing and strengthening, either at once by a Soft Blue, or a Silver once removed from it. By this process, in a very short time, Silvers with "black" bars can be easily bred; and no man, fancier or otherwise, could hesitate for one moment as to which is the most beautifully contrasted colour, and as a consequence the most beautiful bird.

It may be said, How was the Clear Dark Blue kept? Easily and without trouble! There were all the dark Grizzles and Chequers to refresh the colour, all bred from and between Blue

Chequer and Grizzle, and consequently heavily crossed, and all throwing more or less these colours at haphazard in the nest, the Blues, from reasons pointed out, breeding most true to their colour. To help in producing this result there was also the famous Sooty, so highly prized by "flying" men, because of this colour. It used to be said of it "there never was a bad one." This bird was always a "sport" in the nest—that is, produced by parents of a different colour, being the result of a match between a Clear Dark Blue and a Dark Chequer or a Dark Grizzle, or a Dark Chequer and a Dark Grizzle generally—very seldom thrown by mating two birds of either of these three colours. When, therefore, those men who were particular in breeding their Blues found the colour softening, they strengthened it by a cross with the Sooty. Of course the Sooty could have been bred true as easily as any other colour, but it was worth no man's while to do so for flying purposes only. In addition there was a kind of feeling that Sooties came when they liked, which made them so good; and if they were bred to the colour, some not so good as old "highead" would have turned up to spoil the faith in the colour. Therefore the chief colours apart from Blue, bred true for what may be called "fancy," were Whites, Blacks, Reds, and Yellows. I may say to those whose experience of Pigeons does not date far back, that the Sooty hen spoken of was not what is now usually called a Sooty Blue, when speaking of Dark Blues which are chequered or smudged with black on the wings, as many Blue Carriers are now seen; these birds were said by the old school of fanciers to be "chequerey," but the Sooty was a black-looking blue, yet a clear blue—if I may so describe it, a dark blue without any brightness in it.—Carrier.

OUR LETTER BOX.

Lady Gwydir's Poultry Establishment.—We omitted to state that our second view was taken from a photograph by Mr. W. Vick, Photographer, Ipswich. He has other views equally good.

Vulture-hocked—Hackle (*W. O.*).—Vulture-hocked, strong feathers projecting beyond the hock. There is a drawing of it in our No. 562. Hackle are the long soft feathers on the back and neck of fowls.

Duration of Vitality in Eggs (*E. R. P.*).—Yes. There is no doubt that the fresher the eggs are, the better they will hatch, but that they will keep without detriment is proved by the wild birds. A hen Pheasant or Partridge will lay from thirteen to nineteen eggs. She does not lay every day. It will therefore be three weeks' work, yet they all hatch. It cannot be taken as the rule, but we have known eggs hatch after being kept six weeks. The fact that they will hatch need not encourage you to keep them.

Points of Silver-spangled Hamburgh Cock (*Young Recruit*).—Your Silver-spangled Hamburgh cock must have a good firm rose comb with a pike pointing upwards, a well-spotted breast, a clear tail with a black moon at the end of each feather, and blue legs. We do not like breeding from brother and sister, and it seldom answers for producing prize birds. It will, we expect, be too late to make a change now, but you must do so next year.

Spanish Cock with Falling Comb (*Brown Red*).—The partially falling comb of your Spanish cock may be accidental, and it may yet become upright, but the round back is a positive disqualification for every purpose. You should not have bought him, and no one should have sold him. He is utterly worthless as a stock bird, and most of his progeny will probably inherit his defect.

Vulture Hocks—Points of Light Brahma Cock (*A Hampshire Highlander*).—We are almost tired of explaining vulture hocks. They are stiff quilled feathers projecting from the knee backwards and downwards. A Light Brahma cock should have clean white plumage, save stripes on his hackle and saddle, black tail and flight, a well-defined firm pea comb, yellow legs well feathered, and he should be large.

Incubator (*Cruz*).—We do not know where Cantello's can be obtained. If you advertised for an incubator you would probably have many answers.

Rabbits (*T. D. jun.*).—There is no work such as you name published.

Parrot's Wings.—A lady in Cheshire has a Parrot, brought from Old Calabar last June, at which time it was a younger bird than is usually moved. Its wings were clipped before coming away. It was ill and delicate, but for many months has been quite well, only both wings are out of place, one more so than the other; the worst is quite between the legs, and both cover the breast, leaving the back almost quite exposed. Can any of our readers suggest a remedy?

Uniting Stocks (*Beginner*).—We would not advise you at this time of year to unite your "very weak" stock to the other. You would lose far more than you would gain by the disturbance that would follow. You had better treat the weak stock for activity by judicious feeding, either with honey or a syrup of lump sugar. But if no pollen is carried into the hive we would leave the bees to their fate, as the queen will in this case be either dead or moribund. The comb and hive will be useful to hive your first swarm.

Herb Pudding (*Conway*).—Wash, scald, and shred small spinach, beet, parsley, and leeks, of each a handful; have ready a quart of groats previously soaked in warm water for half an hour, cut 1 lb. of hog's lard and three onions into dice, and mince three sage leaves; mix all these ingredients, add a little salt, and tie them up closely in a cloth. Whilst boiling the string must be loosened to allow the pudding to swell.

Worms in a Bull Dog (*Anxious*).—Meyrick says—"Areca nut powder is an excellent vermifuge; dose ½ drachm, to be followed in four hours' time by a tablespoonful of castor oil. Oil of turpentine has the disadvantage of occasionally acting also upon the kidneys, and even upon the brain; but it is too useful a worm-expellant to be omitted from the list. Its ill effects can be greatly diminished by combining it with olive oil. Dose for a medium-sized dog 1 drachm, mixed with a large tablespoonful of olive oil, and followed in two hours by a dose of castor oil alone. A combination of Areca nut and oil of turpentine is a more active vermifuge than either drug separately. Dose ½ drachm of turpentine to 2 scruples of Areca nut. It should be followed by a dose of castor oil. A mild, but very efficient worm medicine, is Venice turpentine, made into a pill, with freshly-grated Areca nut powder. The usual dose of Areca nut will be required, with as much turpentine as will make the pill. This is an excellent remedy for puppies and weakly dogs. It should be followed, in four hours, by castor oil, if the pill has not had a purgative effect. The administration of every description of vermifuge should take place when the animal is fasting. In the case of a full-grown dog, he should have eaten nothing the previous day, and should have the medicine the first thing in the morning. With puppies, the last meal on the preceding day should be omitted. In most cases, the anthelmintic given must be repeated in five days or a week, and as often afterwards as circumstances demand. Areca nut requires four or five repetitions to exterminate the worm; but the combination of turpentine and Areca nut need seldom be repeated more than twice. When the worms are got rid of, it remains to improve the general health so as to prevent their return. This must be done by attention to feeding, keeping the bowels in good order, by occasional doses of castor oil, by giving proper exercise in the open air, and by preventing the dog from eating trash of any sort."

METEOROLOGICAL OBSERVATIONS,

Camden Square, London.

Lat. 51° 32′ 40″ N.; Long. 0 8′ 0″ W.; Altitude 111 feet.

Date. 1872. March.	A.M. Barometer at 32° and Level.	A.M. Hygrometer. Dry.	A.M. Hygrometer. Wet.	A.M. Direction of Wind.	A.M. Temp. of Soil at 1 ft.	In the Day. Shade Temperature Max.	In the Day. Shade Temperature Min.	In the Day. Radiation Temperature. In sun.	In the Day. Radiation Temperature. On grass	Rain.
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 20	29.957	38.8	34.8	N.W.	40.0	46.8	33.1	89.6	29.6	
Th. 21	29.718	33.3	31.2	W.	39.0	40.0	26.4	71.8	23.1	0.150
Fri. 22	29.720	33.7	32.1	N.	39.1	43.4	28.1	81.3	31.0	0.060
Sat. 23	29.825	36.0	35.2	N.	42.2	42.3	32.3	44.1	28.9	0.523
Sun 24	29.721	35.6	34.6	S.E.	42.1	45.4	31.4	83.2	33.0	0.170
Mo. 25	29.624	36.1	33.5	N.	41.1	45.3	27.3	94.1	25.1	0.010
Tu. 26	—	—	—	—	—	—	—	—	—	—
Means	29.744	35.4	33.6		40.9	43.6	29.8	77.8	28.4	0.933

REMARKS.

20th.—A very fine day, but exceedingly cold wind.

21st.—Sharp white frost in morning; becoming darker between 10 and 11 A.M., at noon darker than ever known in the daytime (though no fog); it lasted about twenty minutes, and was followed by a heavy fall of snow, and another heavy fall in the afternoon, the total fall being nearly 3 inches deep; splendid sunset and fine night.

22nd.—Beautifully bright and sunshiny morning, but snowing notwithstanding, the snow ceasing about 9 A.M., but frequent slight falls during the day, with sunshine between, warmer towards night.

23rd.—Fine at 8 A.M., but snowing heavily between 9 and 10 A.M., and continuing to do so more or less nearly all day.

24th.—Thawing fast in the morning, very fine day, warm in the sun but very cold in the shade.

25th.—Fine but very cold except in the sun, which was very bright in the morning, clouding over about noon, slight hail shower between 1 and 2 P.M.

A depression of 12 in the mean morning temperature, and nearly the same in the mean minimum. Altogether the coldest week since the middle of January.—G. J. Symons.

COVENT GARDEN MARKET.—March 27.

The change of weather has materially influenced our market as regards the supply of out-door produce, which is much more limited, and that of Asparagus and Sea-kale has also much fallen off. From under glass, Strawberries and Cucumbers are coming in in much larger quantities than can be sold to any advantage. New hothouse Grapes are replacing the old, which are nearly done everywhere. The Potato trade is heavy, and large stocks are held; Regents are the only kind in which there is a ready trade.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples ½ sieve	0	0	to 4	0	Melons each	0	2	to 0	8
Apricots doz.	0	0	0	0	Mulberries lb.	0	0	0	0
Cherries lb.	0	0	0	0	Nectarines doz.	0	0	0	0
Chestnuts bushel	10	0	20	0	Oranges ₱100	4	0	10	0
Currants ½ sieve	0	0	0	0	Pears, kitchen doz.	4	0	12	0
Black do.	0	0	0	0	dessert doz.	4	0	12	0
Figs doz.	0	0	0	0	Pine Apples lb.	6	8	10	0
Filberts lb.	0	6	1	0	Quinces doz.	0	0	0	0
Cobs do.	0	6	1	0	Raspberries ½ lb.	0	0	0	0
Grapes, Hothouse lb.	15	0	25	0	Strawberries ₱doz.	1	0	2	0
Gooseberries quart	0	0	0	0	Walnuts bushel	10	0	25	0
Lemons ₱100	7	0	10	0	ditto ₱100	1	0	2	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes doz.	4	0	to 8	0	Leeks bunch	0	2	to 0	3
Asparagus ₱100	8	0	12	0	Lettace doz.	1	0	2	0
Beans, Kidney per 100	2	0	4	0	Mushrooms pottle	1	0	2	0
Broad bushel	0	0	0	0	Mustard & Cress punnet	0	2	0	4
Beet, Red doz.	1	0	3	0	Onions bushel	2	0	4	0
Broccoli bundle	0	3	1	6	pickling quart	0	6	0	0
Brussels Sprouts ½ sieve	0	0	0	0	Parsley per doz. bunches	3	0	4	0
Cabbage doz.	1	0	1	6	Parsnips doz.	0	9	1	0
Capsicums ₱100	0	0	0	0	Peas quart	3	0	5	0
Carrots bunch	0	6	0	0	Potatoes bushel	2	0	3	0
Cauliflower do.	3	0	5	0	Kidney do.	3	0	5	0
Celery bundle	1	6	2	0	Radishes, doz. bunches	0	6	1	8
Coleworts, doz. bunches	1	0	3	0	Rhubarb bundle	0	3	1	0
Cucumbers each	0	8	1	6	Savoys doz.	0	9	1	0
pickling doz.	0	0	0	0	Sea-kale basket	1	6	2	6
Endive doz.	2	0	3	0	Shallots lb.	0	4	0	6
Fennel bunch	0	3	0	0	Spinach bushel	3	0	4	0
Garlic lb.	0	3	0	0	Tomatoes doz.	0	0	0	0
Herbs bunch	0	3	0	0	Turnips bunch	0	3	0	9
Horseradish bundle	3	0	4	0	Vegetable Marrows, doz.	0	0	0	0

WEEKLY CALENDAR.

Day of Month	Day of Week	APRIL 4—10, 1872.	Average Temperature near London. Day.	Night.	Mean.	Rain in 43 years. Days.	Sun Rises. h.	m.	Sun Sets. h.	m.	Moon Rises. h.	m.	Moon Sets. h.	m.	Moon's Age. Days.	Clock before Sun. m.	s.	Day of Year.
4	Th	Meeting of Linnean Society, 8 P.M.	56.7	35.7	46.2	17	29 af	5	38 af	6	42 af	4	0	2	26	2	54	95
5	F	Cambridge Easter Term begins.	57.0	36.7	46.0	21	27	5	39	6	6	5	23	3	27	2	36	96
6	S		57.0	36.9	47.2	14	25	5	41	6	24	5	44	4	28	2	19	97
7	Sun	1 SUNDAY AFTER EASTER.	57.7	36.8	47.3	21	23	5	42	6	41	5	3	6	29	2	2	98
8	M		56.1	35.8	46.0	23	22	5	44	6	58	5	21	7	●	1	45	99
9	Tu		55.0	35.3	45.2	22	20	5	46	6	14	6	35	8	1	1	28	100
10	W	Royal Botanic Society's Spring Show.	55.9	33.5	44.7	16	18	5	47	6	33	6	49	9	2	1	12	101

From observations taken near London during forty-three years, the average day temperature of the week is 56.5°; and its night temperature 35.8°. The greatest heat was 79°, on the 7th, 1859; and the lowest cold 20°, on the 10th, 1860. The greatest fall of rain was 0.73 inch.

THE CAMELLIA AND ITS CULTURE.

THE splendid flowers which it bears in such profusion during the winter and early spring months, the attractiveness of the glossy deep green leaves, and the fact that it is equally adapted for the smallest greenhouse or the large conservatory, all combine to make the Camellia a general favourite. It is one of those plants which flower quite freely in a young state, as small plants of only one year from the graft produce abundance of flowers. Then the variety there is in form and colour amongst the flowers, ranging from pure white, through all the shades of blush and rose, to deepest red, and particularly the flaked and mottled flowers, as Countess of Orkney, is very beautiful.

I have been incited to make a few remarks on this flower in consequence of having seen the very fine collection staged by Mr. W. Paul, of Waltham Cross, at the first show in the Royal Botanic Gardens. I noted a great many unusually fine varieties which were quite new to me, and a list of which will be appended to this paper. The plants in question were of small size, healthy, and exceedingly well flowered, and the sight of them reminded me of a lecture which Mr. Paul delivered some few years ago in London, in which he very fully explained his method of culture, and exhibited a superb collection of cut blooms as an earnest of his success. The method of culture detailed by Mr. Paul was challenged by a correspondent in this Journal, who held that to mix peat and loam together was an error of the gravest character, which would ultimately result in failure. The correspondent alluded to stated, that to grow Camellias in perfection, pure turfy loam cut from an old pasture to the depth of 3 inches was necessary, the turf being used the same day that it was cut, and torn to pieces by the hands, instead of chopping it up. Wishing to give this method a fair trial, I had some turf cut, and followed the directions given in this Journal, and the result was this: The plants did very well until the fibre and other organic matter had decayed, when, unless great care was observed in watering, the mass became sodden, and the active rootlets suffered. I had seen Camellias potted in pure turfy loam many years previous to this, except that the turf was allowed to decay to a certain extent before it was used. In one case it was yellow loam of a somewhat tenacious character, and in the other it was a very light sandy loam. In neither instance did the plants succeed perfectly.

However, as Camellias do succeed in pure turfy loam, the question arises whether in either case I have cited it was of a suitable character. I believe the different qualities of loam are very imperfectly understood amongst gardeners. I have frequently used turfy loam for potting, thinking that from the appearance it was well adapted for the object for which it was used, and have been disappointed in the results. Should any reader of this Journal have had lengthened experience with the culture of Camellias in pots when turfy loam only was employed, a short statement of the result would be most useful.

The compost in which I have found the Camellia succeed best is two parts turfy peat and one part turfy loam, with the addition of a fair proportion of silver sand. In potting add plenty of drainage, and over it place some fibry material to prevent the mould from mixing with the potsherds. A good time for potting is when the plants have finished their growth, and in doing this the compost should be pressed rather firmly.

Camellia roots are very brittle and easily injured, so that much care is required when repotting them. Indeed, when there is an abundance of white healthy roots clustering round the ball of earth, and the plant requires to be shifted into a larger-sized pot, it is better not to disturb the roots much, but to repot carefully, merely removing the surface mould. Sometimes, on the other hand, a plant will get out of order at the roots from having been potted in unsuitable material; the drainage is choked, or there is some other evident cause. If such a plant be turned out of the pot in which it has been growing, many of the young rootlets will be found in a state of decay, and some of the old roots quite dead. When a Camellia has reached such a state as this it is very difficult to make a healthy specimen of it, and upon the whole it is better to throw it away, and obtain a vigorous plant in its stead. But in the case of very large specimens this is a serious matter, as large plants are very expensive. If, therefore, it is thought desirable to try and resuscitate an unhealthy plant, turn it out of the pot, pick away with a pointed stick as much as possible of the unsuitable compost, cut off with a sharp knife all dead roots, and repot in fresh compost. The potting material, as well as the roots of the plant, should be in a moist state, as no water should be applied to the roots for a week at least after repotting. The plants should be placed in a moderately warm glass structure, and dewed overhead with the syringe twice a-day. If kept in a moist atmosphere, and well shaded from the sun, and if very great care is exercised in the watering of them, there will be at least a chance of improvement.

To grow the Camellia in perfection, it ought to be planted out in a prepared border; but this plan is not suitable for small houses and for persons of limited means, as it can only be carried out with advantage in large conservatories where ample development is allowed them. I know a comparatively small conservatory where a large plant of the old Alba plena is planted near to a similar specimen of Fimbriata. The house has a southern exposure, but a few rods of Black Hamburgh Vines furnish all the shade that is necessary, and the two trees are annually furnished with hundreds of their snow-white blossoms, rivalling each other in abundance and beauty.

The Camellia is infested with one or two species of scale, which can be got rid of by washing the plants with water in which soft soap has been dissolved. The leaves are also occasionally attacked by red spider, but a good washing with the garden engine or hand syringe will effectually dislodge this enemy. If, however, left to take

its way for a short while it will sadly disfigure the plant by turning the beautiful glossy leaves brown.

I will here append a list of sorts which were exhibited in small pots by Mr. W. Paul at the first spring Show at South Kensington. I have reduced the number to about a dozen and a half distinct varieties which seemed to be the most desirable: Adamo, Dante, De la Reine, var. rosea, Eugène Massina, Grandis, Guillaume III., Il Cygno, La Reine, Lavinia Maggi, Marie Thérèsa, Prima Donna, Princess Charlotte, Rubens, Targioni, Teutonia, Valtavaredo, Vicomte de Nieulant. I do not say that this is a list of the best sorts in cultivation; of course no list is complete without the old Double White, Fimbriata, Lady Hume's Blush, Imbricata, and a few others well known. I can, however, confidently recommend them to be added to the most select collection.—J. Douglas.

SHOW PELARGONIUMS.

While the slightest improvement in any of the various classes of what are called zonal Pelargoniums is sure to be heralded, and there are enthusiastic admirers of Nosegays, Bicolors, Tricolors, Plain-leaved, Hybrid Nosegays, and any other divisions into which this class may be split up, the far more beautiful classes of Show and Fancy Pelargoniums find few to say a word for them, or admirers either to grow or praise them; and yet are they well worthy of a better chronicler than I can be. It is all very well to say, "Oh! there is so little improvement in them, the same colours appear over and over again"—the complaint, by-the-by, always made against a flower which the speaker does not himself patronise—but there is really only one reason they are not the fashion, and we are ever slaves to fashion in flowers. At one time Coleus rises up; everyone is mad after them—for no other word but mad is applicable to the absurdities into which the horticultural world ran about them. At another time it is Tricolors; special shows, special prizes, are held and given for them. Then it is Zonals. "Have you seen Mr. Tomkins's Ruberrima magnifica, or Mr. Jones's Sultan of all the Scarlets?" So Show Pelargoniums had their day. I am old enough as a florist to remember when noble ladies used to throng to Catleugh's at Chelsea, and were glad to bear off a Sylph or Joan of Arc at five and three guineas a-piece. But, alas for favour! now "none so poor as do them reverence." Yes, I am wrong: there is one—Mr. Charles Turner, of Slough, who through evil report and good report has fostered, as far as he was able, a taste for them. He has every year brought out a number of new seedlings of both Mr. Hoyle's and Mr. Foster's strain, and of such excellence that the Floral Committee have always awarded some of them certificates, a proof that they are in advance of those already grown. He does this from pure love for the flower—I mean that the space occupied by the plants he could much more profitably employ with more paying things.

When one now goes to an exhibition in June it is undeniably a great loss no longer to see the glorious plants that Bailey, Fraser, and Turner used to dazzle our eyes with; but fashion has so willed it, and we must only patiently submit. Perhaps as fashion, as well as history, repeats itself, and the young ladies of the present day, with their high-heeled boots and short skirts, might sit for the portraits of their great grandmothers in their youthful days a hundred years ago, so we may yet again see those glories of the past revived. That the flower has not degenerated, and that improvements may still be made, is clear from looking at the varieties which made their appearance last year, and from what I saw at Nottingham of those for the present season. I have been indebted to Mr. Turner for the opportunity of blooming those of the past season in my own little greenhouse, and have made the following notes concerning them; they may be of use to some who may be induced to attempt their growth.

Admiration.—A remarkably fine and distinct flower, with a not very large spot on the upper petals, surrounded with orange, with a narrow lilac margin; the lower petals pale lilac rose.

Black Prince.—A large flower. The top petals intense black; lower petals deep rosy crimson, richly veined; a clear white eye. Altogether a flower of very refined character.

Charlemagne.—Soft salmon peach, with medium-sized spot on the upper petals. A good and pleasing flower.

Duke of Edinburgh.—An exceedingly rich flower. Top petals intense black, with a very narrow edge of bright crimson; the lower petals deep crimson strongly veined with maroon. One of the most attractive flowers we possess, and of very good habit.

Eldorado.—A purple flower with a violet shade on the lower petals, quite a new colour; black spot on the top petals, shading off to crimson. Large flower, and the habit dwarf.

Holkar.—Orange maroon, a dark flower, with nearly black top petals. Very great substance, and of good quality.

Magnificent.—A large finely shaped flower, deep lilac rose colour; top petals black, and rose edge.

May Day.—Lower petals soft pink, black spot on the top petals. A large and smooth flower, of good shape.

Pacha.—A very richly coloured flower; top petals with black spot, crimson margin; lower petals pencilled with crimson; clear white centre.

Pollie.—Distinct and handsome; colour a rich deep crimson; black spot on the upper petals, narrow crimson margin.

Sultana.—Top petals marked with black, narrow lilac edge, clear white centre, Dwarf in habit, and of good growth.

Warrior.—Black spot on the upper petals; colour a rich deep crimson; smooth. Of good quality and habit.

There is one thing that has struck me with regard to Pelargoniums—Why, as prizes are offered for new varieties of Roses, of Hyacinths, &c., it would not answer to offer them also for new varieties of the Pelargonium, say of the last season? It might encourage their cultivation, and give people an idea of the progress made.—D., *Deal.*

ROYAL HORTICULTURAL SOCIETY'S BIRMINGHAM EXHIBITION.

From your report of the proceedings of a meeting of the local committee held on the 14th ult., I understand that £100 is placed at the disposal of the implement committee for appropriation, by the award of five gold medals, in the following manner:—One for the best horticultural building, one for the best hot-water apparatus, one for vases, &c., one for garden machinery and tools, and one for wirework, &c. Now, with regard to those awards which come under the last three headings, I apprehend that after the question of lawn mowers has been decided, the judges will experience little difficulty in arriving at a satisfactory selection of such of the remaining meritorious articles as come within these classes; but with regard to the "best" horticutural building I am not so sanguine. By what standard of excellence are these structures to be judged? Is the all-prevailing consideration of cheapness to be the criterion? because many of the buildings exhibited at our horticultural shows during the last few years have fallen little short of a disgrace to their exhibitors. Inferior materials, and bad workmanship, covered with wretchedly coarse paint, in gaudy colours, and ticketed "for sale, cheap," seem to have been the *beau idéal* of a horticultural structure suited to the public taste. Is it to be a consideration of size, quantity erected, construction, or novelty in design, or good materials and workmanship, or utility, or of interior arrangement, &c.? because upon matters of construction, and what is really the best form of house for each respective purpose, our horticultural doctors agree to differ. Again, of what is the building to consist—a conservatory, vinery, Peach house, pinery, orchard house, plant-stove, pit, or hand-glass? I am of opinion that some instructions should be issued, and the buildings classified, otherwise one class of building will be competing against an opposite class, instead of against a similar building of its own class, and this will create certainly much confusion and dissatisfaction.

Now a word respecting the "best hot-water apparatus." This is really a knotty question, and one by no means capable of an easy reply. The first queries which seem at once to present themselves are—1st, Is the apparatus to be working or not? 2nd, By what test is the apparatus to be certified as being "the best?" 3rd, Is this competition to resolve itself into the long-talked-of trial of boilers? If so, where are the conditions and regulations by which such trial is to be governed? 4th, By what special points are the judges to be guided in making their awards? And finally, what are the qualifications necessary to constitute a competent judge capable of giving a just decision in this important matter?

I am of opinion that the judges should be men of scientific attainments, men of good position, and entirely outside the horticultural world, as engineers, &c. They should be above suspicion of allowing themselves to be "button-holed" by any of the competitors, or likely to be influenced by the consideration of any trade or personal interests. The fact is, that favouritism begets jobbery, and not unfrequently brings competition into ridicule, instead of making it a medium by which the best productions become honoured by the best awards.—S.

ACROZAMIA SCLEROCARPA.

This, one of the most elegant of known Palms, is very commonly found throughout the whole of Brazil, Guiana, and the

Antilles, in rather dry and sandy spots of an elevated, rocky, and barren character. There it has an erect straight stem of from 33 to 40 feet in height, and leaves from 10 to 15 feet in length. There are black smooth spines upon the trunk and

Acrozamia sclerocarpa.

also on the spathe, the former of which do not continue, but disappear as the age of the tree increases. The spadices vary from a foot to 18 inches in length, as does also the spathe, which bears the spines upon the outside. The flowers are rather small, and of a greenish yellow colour. They are followed by the drupes, which are globular in shape, of an olive or reddish hue, shiny in appearance, and bearing the remains of the style at the top. The pulp, which is of a glu-

tinous fibrous nature, encloses thick bony kernels.—(*L'Illustration Horticole.*)

ROYAL HORTICULTURAL SOCIETY.

APRIL 3RD.

ALTHOUGH this was supposed to be little more than an ordinary committee meeting, the subjects brought forward were so numerous and so good that it really was a show, and a show, too, of no mean excellence. The beautiful Orchids of Messrs. Veitch, the Roses from the same firm, and the Roses from Mr. William Paul, were alone worth a journey to Kensington to see; there were, besides, a host of subjects in the miscellaneous class, constituting an exhibition in themselves.

The first class in the schedule was for Odontoglots. Here Mr. Ward, gardener to F. G. Wilkins, Esq., Leyton, was first with a very fine example of Odontoglossum Phalænopsis bearing fourteen flowers, O. Pescatorei, O. triumphans, fine, O. Alexandræ, O. hystrix, and O. Hallii. Mr. Bull, of Chelsea, came second with a very good collection, and Mr. J. Linden, of Brussels, third. In his collection there was a remarkably fine specimen of O. trimmphans, bearing a multitude of spikes; O. roseum, conspicuous by its fine colour; O. odoratum, and O. Hallii.

Cyclamens were numerously shown, forming a brilliant bank of blossom. The best collection came from Mr. Goddard, gardener to H. Little, Esq., Cambridge Villa, Twickenham, and consisted of about a hundred pots, many of which were quite a mass of bloom. The second prize went to Mr. R. Clarke, market gardener, Twickenham, who had also a good collection. Mr. Goddard was likewise first for twelve with large specimens admirably flowered and well diversified as regards colour. The foliage, too, was very fine. Mr. Clarke came in second. Mr. Goddard was again first for six with plants equally fine with those exhibited in his collection of twelve. Messrs. E. G. Henderson sent a group not for competition.

Of Cinerarias several good groups of nine were exhibited. The prizes went to Mr. Marcham, gardener to E. Oates, Esq., Iver; Messrs. Dobson & Son, Isleworth; and Mr. James, gardener to W. F. Watson, Esq., Isleworth.

Of six Amaryllis the only group shown was from Mr. Baxter, gardener to C. Kieser, Esq., Broxbourne, to whom a first prize was awarded. Kieseri, rich blood red; Victor, brighter in colour; and Olga, light crimson banded and edged with white, were the most showy. Mr. Baxter also sent a collection of seedlings, in which we noticed William Paul, orange scarlet, and Crimson King, dark red. Messrs. Veitch exhibited in the miscellaneous class a group in which Hippeastrum pardinum was conspicuous by its singularly and beautifully marked flowers. Scherzeri, crimson scarlet banded with greenish white, was also noticeable as a fine broad-petaled variety.

There were classes for six hardy Primroses in boxes, and for six bulbous plants in flower, but here was no exhibition of either.

Miscellaneous collections were not only numerous, but several of the groups were of high merit. Messrs. Veitch sent a splendid collection of pot Roses beautifully bloomed, also boxes of cut blooms. Facing these was another fine group of the same flower from Mr. W. Paul, of Waltham Cross, in which were his new Hybrid Perpetual Princess Beatrice with large and beautiful blooms, and a fine plant of Maréchal Niel trained round sticks, forming a cylindrical trellis, and covered with flowers and buds. Messrs. Veitch also exhibited a splendid group of Orchids, comprising Odontoglossum Alexandræ with three very fine spikes of large beautifully coloured flowers; Foxbrush Aërides, Oncidium bifolium and leucochilum, both very fine; O. cucullatum with lilac and purple spotted lip; Cypripedium caudatum with two flowers having the "tails" 27 inches long; the new Odontoglossum Andersonianum which received a first-class certificate at the last meeting; Masdevallia Veitchii with four of its gorgeously-coloured purple and orange-shot flowers; Odontoglossum Reichenamii with a spike of which the flowering portion was upwards of 20 inches in length; Oncidium sarcodes also fine; and Phalænopsis grandiflora grown on blocks of wood fastened to a kind of trellis formed of wooden bars placed parallel to each other, and fastened together, but so as to leave intervals between them. Along with the Orchids were a magnificent pan of Anthurium Scherzerianum, the fine double Clematis John Gould Veitch, a pan of the beautiful little white Primula nivalis, and the white hybrid Rhododendron Sesterianum. Mr. J. Linden, Brussels, sent a remarkable specimen Ada aurantiaca, and a very fine specimen of O. triumphans.

Messrs. Rollisson, of Tooting, sent a group of Orchids and other plants, including some good examples of Dendrobium nobile, the orange-flowered D. fimbriatum oculatum with several rich-coloured racemes, Vandas, and a basket of Primula nivalis. From the same firm came also bush and standard Mignonette, shown at the last meeting. Mr. Ward, gardener to F. G. Wilkins, Esq., exhibited a fine specimen of Odontoglossum cristatum. From Mr. Charles Noble, Bagshot, came a large collection of his beautiful varieties of Clematis; from Messrs. F. & A. Smith, Dulwich, a large group of Cinerarias, among which were several fine new varieties; and from Mr. Ware, Hale Farm Nurseries, Tottenham, a large and charming group of spring-flowering plants, in which Iris chinensis was conspicuous by its beautifully fringed pale bluish lilac and orange flowers. Along with these was a large group of Mrs. Pettifer forcing Pink. Mr. Needle, gardener to the Comte de Paris, York House, Twickenham, again exhibited a charming collection of Ophrys and Orchis.

Mr. Williams, of Holloway, exhibited a very fine group, in which were Tillandsia Lindeni with four flowers in great beauty, remarkably fine specimens of Phalænopsis Schilleriana and Trichopilia suavis, the brilliant Læha cinnabarina, Magnolia Lenné, a pan of Primula nivalis, and other plants. From Mr. Bull came a large collection of Palms, Dracænas, a very fine Platycerium grande, and various fine-foliaged plants, together with Masdevallia ignea and other Orchids; and from Mr. Wills, Sussex Place, Old Brompton, a numerous and tastefully arranged group of plants, comprising Palms, Orchids, and a great variety of stove and greenhouse plants, among which was a fine specimen of Rhododendron Countess of Haddington. Several extra prizes, which will be found in the list of awards in another column, were given for these subjects.

FRUIT COMMITTEE.—G. F. Wilson, Esq., F.R.S., in the chair. Mr. George Cooling, of Bath, sent heads of Matchless Broccoli, large, close, and good. Messrs. Thomas Watts & Son, Northampton, also sent heads of Excelsior Broccoli, very similar to the Matchless of Mr. Cooling. Mr. Frederick Perkins, of Leamington, sent heads of his Leamington Broccoli, which were large, close, and well protected. Messrs. Stuart & Mein, of Kelso, sent specimens of the Improved Broad-leaved Dandelion, partly blanched, and well-grown, producing a large quantity of excellent salad. Mr. Francis Dancer, of Chiswick, sent a plant of a finely variegated sprouting Broccoli. Mr. C. Baldwin, gardener to B. Drew, Esq., sent three brace of very fine specimens of Telegraph Cucumber, which received a cultural commendation. Dr. Moore, of Glasnevin, sent fruit and foliage of Theobroma Cacao; the fruit was quite ripe, and a cultural commendation was awarded to the exhibitor. Mr. Woodham, gardener to H. D. Perkin, Esq., Barnes, sent a fine dish of Keens' Seedling Strawberries, which received a cultural commendation. Mr. C. Clarke, Colwich, Stafford, sent a seedling Apple of small size, round shape, and russetty skin, with streaks of red; the stalk short, eye small, flesh tender, richly flavoured, and with a fine bouquet.

M. A. de Biseau, d' Hauteville, Binche, Belgium, sent fruit of two seedling Pears:—No. 1, a large oblong fruit with a long stout stalk, united to the fruit by a prominent fleshy lip. The skin is entirely covered with cinnamon-coloured russet, the flesh yellowish, very juicy, buttery, and melting, and with a rich flavour. It was awarded a first-class certificate, and was named Beurré de Biseau. No. 2 was of a roundish Bergamot shape, of medium size, and of a lemon colour, with very little russet on the skin, but the specimens were too far gone, and a proper judgment could not be formed of the quality. Mr. Richard Westcott sent two bunches of Lady Downe's Grape, cut from the Vine on 30th of March, but the Committee did not consider the flavour remarkable.

Prizes were offered for Cucumbers Black-spined, White-spined, and Smooth. Of the first-named the best came from Mr. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, Ilford, who had a fine brace of Blue Gown, at least 22 inches in length. The second prize went to Mr. Parsons, gardener to R. Attenborough, Esq., Fairlawn, Acton Green, for Oates' Black-spined. In White-spined, Mr. Pizzey, gardener to Sir E. Perry, Fulmer, Slough, was first with Pizzey's Favourite, said to be a very prolific variety; and Mr. Record, gardener to the Marquis of Salisbury, Hatfield, second with Winter Supply. In the Smooth class Mr. Douglas was first with a variety of his own raising which recently obtained a certificate, and which was named "Tender and True"—the Douglas motto. The brace were very equal in size, fully 30 inches in length, and to all outward appearance just what prize Cucumbers ought to be. Mr. D. S. Gillett, gardener to F. W. Berger, Esq., Court Gardens, Great Marlow, was second with Telegraph, which Mr. Record and others also sent very good. Mr. Cadger, Luton Hoo Park, sent Luton Hoo, not for competition, a stout-built, and, we are informed, also very good variety.

Of salading, for which prizes were likewise offered, there were two collections, one from Mr. Record, the other from Mr. Hepper, gardener, The Elms, Acton, both very excellent, and each received a well-merited first prize. They consisted of Celery, Corn Salad, Chervil, Cucumbers, Green Curled and Batavian Endive, Lettuce, Chicory, Radishes (Long and Turnip), Water Cress, Mustard, American and Golden Cress, Sorrel, Tarragon, and Tripoli Onions. Mr. Record's collection was arranged on the leaves of Passiflora princeps, that of Mr. Hepper on those of Coleuses and tricolor Pelargoniums. Both collections contained Beet, which, though very desirable in a salad, we never yet saw forced.

FLORAL COMMITTEE.—W. Marshall, Esq., in the chair. The subjects submitted to the Committee were few, but the defici-

ency in number was amply compensated by the beauty of some of those exhibited.

Mr. J. Linden, of Brussels, sent Masdevallia Lindeni with eight flowers, one of the most lovely of all cool-house Orchids, the colour a brilliant violet magenta. This had a cultural commendation. Enchilirion corallinum, purplish crimson and yellow, also of great beauty, was likewise shown by the same firm, as also Tillandsia Lindeni vera, with deep rose-coloured bracts and beautiful violet-blue flowers. Messrs. Veitch had a first-class certificate for Oncidium Cræsus, a fine form with yellow and deep brown flowers.

From Mr. Bull came Dracæna metallica with dark-bronzed foliage—this received a first-class certificate; and a similar award was made to Zalacca edulis, an ornamental Palm. Messrs. Rollisson, of Tooting, sent Cymbidium pendulum atropurpureum with dark crimson, white, and orange flowers; and from Mr. Richards, gardener to Baron Rothschild, Gunnersbury, Acton, a variety of Odontoglossum Alexandræ, with narrower petals and sepals, and not equal in beauty to the better-known form.

Messrs. F. & A. Smith, Dulwich, sent a collection of Cinerarias, many of them very beautiful and new in colour, and which will doubtless be seen in better condition hereafter; also Beauty of Surrey Azalea, unquestionably one of the finest white Azaleas ever seen, and of extraordinary form and substance. Mr. Pizzey, gardener to Sir E. Perry, Fulmer, Slough, sent a good variety of crimson Intermediate Stock; Mr. W. Paul, Hybrid Perpetual Rose Sir W. Gull, velvety purple, not large, but which will probably be better seen hereafter; Mr. Day, florist, Acton, a double Cyclamen; Mr. Ware, Tottenham, a singular Iris named sibirica; Edward Leeds, Esq., Manchester, and Messrs. Barr and Sugden, Covent Garden, collections of Narcissus; and Mr. Green, gardener to W. Wilson Saunders, Esq., Hillfield, Reigate, Stenomesson coccineum, a very ornamental plant with pale red flowers, Grevillea pulchella, and Gladiolus quadrangularis with greenish white flowers, produced on tall flower-stalks.

THE CHEMISTRY OF MANURES.

Allow me thank "J. M." for his interesting article on the chemistry of manures, in your issue of the 21st ult. Although I am not quite orthodox, yet I agree in all he said, especially when he says, "That manures are valuable only in so far as they contain a maximum of nitrogen I do not believe, but I do believe that farmyard manure, as a general rule, is the best, because it contains all the constituents of former crops, and is, therefore, best suited for the production of future ones."

I am afraid I must plead guilty of loose phraseology, if I used the expression that nitrogen in the form of ammonia was a solvent for every form of carbon. I did not think of feeding plants with diamonds, nor yet with charcoal. What I meant was, that in vegetable moulds, especially most kinds of peaty soils, there is present a great quantity of vegetable matter in the form of humic acid, geic acid, ulmic, crenic, apocrenic acid, &c., all of which acids are more soluble in alkaline solutions than in pure water; and that ammonia acts an important part by uniting with the carbonic acid arising from the decomposition of these vegetable acids, and forming carbonate of ammonia, which carbonate of ammonia is far more soluble than carbonic acid itself.

One of my objects in writing on the chemistry of manures about three years ago was to expose the fallacy of Liebig's argument that plants assimilated all their carbon through their leaves. Very likely if no supply of carbon were given to plants by means of their roots, a plant might in time assimilate its supply of carbon through the air only, but to suppose that the roots only supplied the mineral ingredients necessary for the vitality of the plant and nothing more, was to deny the plant a function in its highest state of health and vigour which it was known to be possessed of in its process of development from the germ, when in its embryo state from the seed it had no leaves by means of which to supply itself with carbon. I will not, however, go over all the arguments again; but, as a general rule, it is true that the rapid development of a plant is in exact proportion to the rapidity with which, by means of its leaves and roots, it can assimilate carbon, and so build the carbon up into its system. Heat, moisture, and stimulating manures are the great agents whereby the roots of the plant absorb and assimilate this carbon; the carbon in the first instance being decomposed and uniting with oxygen to form carbonic acid, the carbonic acid in its turn combining with ammonia, and being readily taken up into the sap of plants in the form of carbonate of ammonia.

I quite agree with "J. M." that the carbon of vegetable moulds must assume the gaseous state before it is again assimilated into the plant.

I have not tried the experiment of collecting gases from aquatic plants growing in an aquarium. I had always understood the gas given off was oxygen, but thought it arose from the liberation of oxygen from carbon and not from hydrogen; I mean that as the plant assimilated carbon from carbonic acid it set free oxygen. I was not aware that any experiments had proved that the plant decomposed water and not carbonic acid, and I should be glad to hear of any experiments on this subject.—C. P. Peach.

PEAR FLY.

In your number for March 24th, 1870, I published a letter on the Pear fly, and you invited communications on the subject, as the insect was a spreading evil. Since then nothing more has been said about it, though I have looked anxiously for something on such an important matter. After reading your note to my letter, I purchased two cartloads of spent tanner's bark, and laid it at once under every Pear tree, pyramids and espaliers, young and old, but to no purpose. Young trees which had never even bloomed before were attacked by the Pear fly. I afterwards removed the entire upper soil from the large standard Marie Louise mentioned in my letter, and threw it into the river about half a mile from the orchard, and last year a few Pears set on this tree. Will you insert this as a second letter on the subject, and ask for more communications, with a special note of your own?—Centurion.

[We have no note to add. We said in 1870 all we knew on the subject. If any of our readers can throw any light on the matter we shall be obliged by their so doing.—Eds.]

FORCING VEGETABLES.—No. 7.

THE CAULIFLOWER.

Although the Cauliflower is not, strictly speaking, a forcing vegetable, it is necessary from its popularity as a delicious dish, to prolong its season of usefulness by both early and late cultivation under glass. I may, therefore, be pardoned for placing it under the head of forcing vegetables, and my remarks upon it will be confined to the treatment of it under glass, as its out-door cultivation is that more generally adopted and better understood. I am in the habit of producing a good supply of this vegetable up to Christmas, as do many gardeners; but the system is by no means general amongst them, nor thought so much of as it should be, neither is the production of the first spring crop regarded by all gardeners as of the same importance. The great point is to have the latest crop connected with the incoming of winter Broccoli, and for the earliest spring crop there should be no vacancy allowed if possible between the late Broccoli and Cauliflower. The latter object is, perhaps, more easily accomplished, because we have now the advantage of two of the best Broccolis grown, those are Lauder's Late White Goshen, and Cattell's Eclipse. The latter may generally be cut up to June, at which time Cauliflowers from frames and hand-lights come into use.

Where there is scope the best things a gardener can have in connection with his kitchen garden are turf pits, cool frames, and hand-glasses. I ought not to omit the French cloches, for I find them most useful adjuncts. If these are provided in accordance with the demand, Cauliflowers for autumn use, and plants for the first out-door crop and also for the first spring crop, may be stored, protected, and grown for the table.

Now, to provide for these demands I make a good large sowing of seed in the middle of July, and again in August, for autumn supply. The plants which arise from these are planted amongst good soil in a spare border, and in such quantities as are required to meet the demand; they should be encouraged to grow vigorously, and if they are planted out at intervals will come in for use successively. Should the autumn prove mild so much the better, but if not, the most forward of them may be transplanted carefully into turf pits, and so continue to fill-up all such spare places as they become vacant. Those that may be already fit for use must not be exposed to a too low temperature, or else the flavour deteriorates, but must be laid-in under protection carefully. Those that have been transplanted will, if care be taken of them, gradually come in for use, and will be found the most delicious vegetable for table at that season of the year. Of course, they must have light and air on every opportunity.

We now come to store plants. These I sow in September, about the first week, on a south border in the garden. After

they can be well handled, I prick hundreds of them into cold frames, keeping them near the glass, and also into hand-lights under a wall, or under cloches, or even under the wall without protection. If the winter be mild they will form a welcome addition to the spring stock of plants. I keep them clean and let them grow just sufficiently to get them established, reserve their growth for the spring, and then plant them out, the best into cold pits and frames, and under hand-lights, where they can be kept in a growing state without check until they are fit for use; and the remainder are planted out in trenches between Pea rows on a south border; this affords them considerable protection. Another plantation may be made a little later on without any protection whatever, but on a border if possible.

We often hear of Cauliflowers going suddenly into that provoking state called buttoning, and I have frequently had them so among my stock. I have found that this depends upon the season, and I have never been so free from buttoned Cauliflowers as when I have been able to plant out my earliest outdoor crop without a check. For this purpose the plants must be small, and should be moved to their quarters with a ball of soil attached to their roots. It is my plan to keep their growth in check until I place them where they can go on uninterruptedly. If they grow too large in the store frame or seed bed, the chances are that most of them will button when planted out, no matter whether in pits, frames, or out-doors. For successional crops I make a sowing of seed, also under glass, in both February and March. In the latter month I make a sowing out-doors also, as the produce from the first crop is uncertain. These sowings must be taken care of and pricked-out under cover, if possible, and afterwards planted out of doors.

I am not fond of growing a quantity of sorts of any kind of vegetable, especially Cauliflowers, and it is more than ever difficult to get the sorts true. We have a very distinct and desirable sort in Veitch's Autumn Giant, which I like very much. The Early London Cauliflower is a sort I have grown for years, and have every reason to be satisfied with, as it is most reliable when it can be procured true, possesses a delicious flavour, and is close and compact in its growth, and is to a considerable extent self-protecting. The Walcheren is a well-known sort for general cultivation, and many prefer it. Cauliflowers for store plants I find should be planted in a rather poor and somewhat adhesive soil, instead of the richest and lightest that can be got, as is customary with some. They will then be of a more suitable size when planting-time comes round.—Thomas Record.

BASKET-MAKING.

Where my father was apprenticed the head gardener employed him and some others during the long winter evenings in making baskets. My father emigrated to Canada, and he there found his knowledge of basket-making not only useful but very profitable, for his baskets sold for high prices, and he made them during his evening and other spare hours. I know a little of the basking-making art, but need more instruction, where can I obtain it? I purpose emigrating to Canada next spring, and locating where my father died.—H. F. M.

[You had better obtain some instructions from a basket-maker, but the following, which we copy from one of Mr. London's works, will aid you and other young gardeners. It is a handicraft that will be useful wherever they reside.—Eds.]

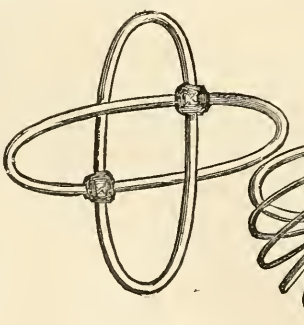


Fig. 1.

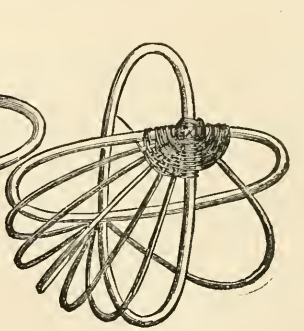


Fig 2.

One year's shoots of the common Willow, or of some other species of that family, are most generally used. The shoots are cut the preceding autumn, and tied in bundles, and if they are intended to be peeled, their thick ends are placed in standing water to the depth of 3 or 4 inches; and when the shoots begin to sprout in spring they are drawn through a split stick stuck in the ground, or an apparatus consisting of two round rods of iron, nearly half an inch thick, 1 foot 4 inches long, and tapering a little upwards, welded together at the one end, which is sharpened so that the instrument may be readily thrust through a hole in the stool or small bench, on which the operator sits. In using it, the operator takes the wand in his right hand by the small end, and puts a foot or more of the thick end into the instrument, the prongs of which he presses together with his left hand, while with his right he draws the willow towards him, by which the bark is at once separated from the wood: the small end is then treated in the same manner, and the peeling is completed. Every basket consists of two parts: the framework of the structure, and the filling-in or wattled part. The principal ribs in common baskets are two: a vertical rib or hoop, the upper part of which is destined to form the handle; and a horizontal hoop or rim, which is destined to support all the subordinate ribs on which the wands are wattled. The two main ribs are first bent to the required form, and made fast at their extremities by nails or wire. They are then joined together in their proper position, the one intersecting the other; and they are afterwards nailed together, or tied by wire at the points of intersection. The operation of wattling is next commenced, by taking the small end of a wand, and passing it once or twice round the cross formed by the points of intersection; after which one, or perhaps two secondary ribs, are introduced on each side of the vertical main rib. The wattling is then proceeded with a little further, when two or more secondary ribs are introduced; and the process is continued till a sufficient number of subordinate ribs are put in to support the wattling of the entire structure. The whole art, as far as concerns the gardener, will be understood from the following figures:—

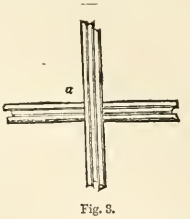


Fig. 3.

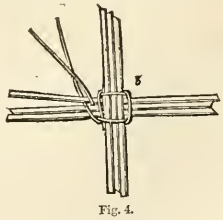


Fig. 4.

Fig. 1 shows the handle and rim of what is called the Scotch basket, made fast at the points of intersection.

Fig. 2 shows the same skeleton, with the ribs of one side added, and the wattling or woven work commenced.

Fig. 3 represents the commencement of what is called the English mode of basket-making; in which three parallel rods of 2 or 3 feet in length, according to the intended diameter of the bottom of the basket, are laid flat on the ground, and

three other rods of the same length laid across them at right angles, as at *a*; and next the weaving process is commenced, as at *b*.

Fig. 5 and *fig.* 6 show the progress of weaving the bottom; the latter being what ultimately becomes the under side, and the former the upper side.

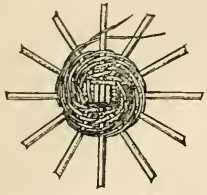


Fig. 5.—Upper side.

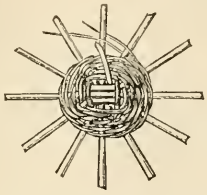


Fig. 6.—Under side.

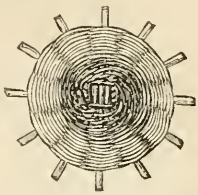


Fig. 7.

Fig. 7 shows the bottom complete, the under side of it being uppermost.

Fig. 8 shows the bottom turned upside down, the points of some of the radiating ribs cut off, some of the rods which are to form the side ribs inserted, and the side weaving commenced.

Fig. 8.

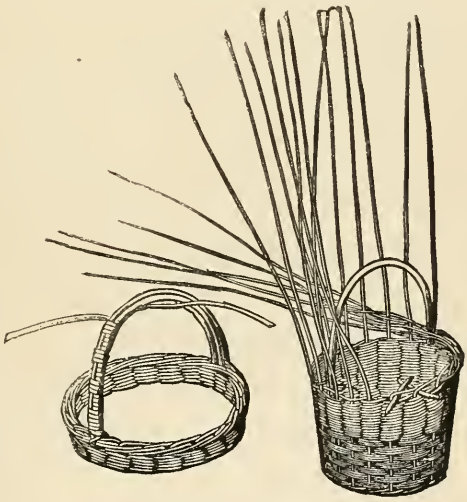


Fig. 10.

Fig. 9.

Fig. 9 shows the basket nearly completed, with part of the rim finished, and the rod on which the handle is to be formed inserted.

Fig. 10 shows the rim completed and part of the handle plaited.

OPUNTIA RAFFINESQUIANA AND O. HUMILE.

These two plants are admirably adapted for rockeries; their thoroughly distinct forms and large gay flowers render them very attractive, and as they are as hardy as they are beautiful, and so cheap, they are within the compass of even the smallest amateur gardener's means. I confess having given expression to many doubts respecting their hardiness when the first of these species was shown and recommended me, for I had considerable experience of the class to which they belong, and well knew their liability to decay and melt away when surrounded by a superabundance of water. I could not imagine any member of the genus Opuntia being able to withstand the incessant changes of our climate, in which the frost of to-day is succeeded by the rain of to-morrow, and so on, during our protracted winters, which usually are so trying to exotic vegetation. Still, as faith in their hardiness gained ground, I determined to try the first-named plant, when the friend to whom I applied told me he had two species perfectly hardy—namely, O. Raffinesquiana and O. humile, the former

with broad flat branches, and the latter smaller-growing, with semiterete branches, which, together with its white hairs, made it look like some small-growing hoary Cereus. These two plants I have been experimenting upon for two years in my London garden, having planted them in the border as well as upon the rockery, where they have lived and grown to my satisfaction, although they have not yet flowered; indeed, at the present moment they are not larger than when I bought them. This, however, is easily, though not satisfactorily (to me) explained, for in the first place my neighbour had a cutting from each; that was so far good, but lately the plants have suffered severely from the raids of cats. We can, however, use for the rock garden plants that have maintained a presentable appearance during the past two years, and which are totally distinct from any others in habit and appearance; such are certainly well deserving our attention.

The flowers of Opuntia Raffinesquiana are large and showy, in addition to which it has a tropical appearance, but whether the other species produces showy flowers or not I am unable to say. I am extremely proud of my hardy Cactuses, as most of my visitors call them, and I sincerely hope some of our plant-collectors may be able to contribute to our enjoyment still more by the introduction of other hardy species of this or any allied genus.—Experto Crede.

AGRICULTURAL RETURNS.

The total acreage returned for holdings under 20 acres was 1,897,984 acres for Great Britain, or 6 per cent of the acreage returned for holdings of all sizes. Of the 1,897,984 acres, 830,223 acres, or 44 per cent., were under tillage, and 1,067,761 acres, or 56 per cent., were under permanent pasture. The live stock returned as belonging to occupiers of less than 20 acres, consisted of 109,029 horses out of a total of 1,254,450; of 582,555 cows and cattle out of a total of 5,337,759; of 1,414,041 sheep and lambs out of a total of 27,119,569; and of 502,719 pigs out of a total of 2,499,602.

It will be interesting to see, so far as relates to the particulars just described, to what extent the smaller and larger classes of holdings differ in their agricultural condition and resources. Thus, of the total acreage returned by the two classes of holdings in Great Britain, holdings under 20 acres had 44 per cent. of the acreage under tillage, and 56 per cent. under permanent pasture; and holdings of and above 20 acres had 61 per cent. under tillage, and 39 per cent. under permanent pasture. As regards live stock the proportionate numbers to every 100 acres were: horses 5·7 on holdings under 20 acres, and 4 on holdings of and above 20 acres; cows and cattle 30·7 on holdings under 20 acres, and 16·4 on holdings of and above 20 acres; sheep and lambs 74·5 on holdings under 20 acres, and 88·8 on holdings of and above 20 acres; lastly, pigs 26·5 on holdings under 20 acres, and 6·9 on holdings of and above 20 acres. The difference in the number of sheep upon the two classes of holdings in Great Britain is effected by sheep being rather numerous in the small holdings in the hilly parts of Great Britain, or in Wales and Scotland. In fact, as regards Scotland, from the large proportion of the acreage of the small holdings which is under tillage, and the large number of sheep returned by the occupiers of small holdings, it is probable that the occupiers in certain of the highland counties, especially in Argyle, Inverness, and Ross, have access to mountain pasturage for their sheep in addition to the land held and returned by them as occupiers. In England the proportions for sheep per 100 acres are upon holdings under 20 acres 32·7, and upon holdings above 20 acres 76·5.

As regards orchards in 1871, no additional acreage is brought under notice, as the land appropriated to the growth of fruit trees, being under tillage or grass, has been returned as under crop or in pasture. The agricultural fruit crop, as it may be termed to distinguish it from the garden fruit crop, which is not ascertained, was returned as occupying as many as 206,583 acres in Great Britain in 1871. Of this total acreage under fruit trees of any kind in orchards, 176,685 acres were in England, 23,033 acres in Wales, and 6865 acres in Scotland. The counties in England with the largest acreage under orchards are Devon with 30,013 acres, Hereford with 20,811 acres, and Somerset with 16,267 acres.

The quantity of Potatoes grown in Prussia is very large, the produce in 1870 being estimated at 656,000,000 bushels, or 16,400,000 tons, which is nearly twice the quantity stated to have been grown in France in 1869, and is more than twice the yield of Potatoes in the United Kingdom, if estimated at an average of 4 tons or 160 bushels per acre. It is well known, however, that the Potato is largely used in Prussia for distillation. The production of Beetroot for sugar is specified for several countries. As much as 4,360,000 tons are said to have been grown in France in 1869, and 1,924,000 tons in Austria in 1870. Tobacco, according to the latest returns, is grown to the extent of about 7,000,000 lbs. in Holland, 5,000,000 lbs. in Belgium, 55,600,000 lbs. in France, 4,700,000 lbs. in Austria, 3,000,000 lbs. in Greece, and 274,000,000 lbs. in the United States.

The total number of acres bearing crops in 1871 connected with gardening were:—

	England.		Wales.
Potatoes	391,531	....	51,853
Turnips	1,532,983	....	69,833
Carrots	18,654	....	311

In 1870 there were 1380 acres cropped with Potatoes in the Island of Mauritius. In 1870-1 in Victoria 127,579 tons were produced; in South Australia 9563 tons; in Tasmania 36,028 tons; New Zealand 56,040 tons.

THE WEATHER.

Twelve degrees of frost here (Lincoln) this morning (March 26th). This is precisely the same amount that last year on the 6th, 7th, and 8th of April ruined the fruit crops. This morning, fortunately, every twig and bud was beautifully covered with snow, and herein may consist the safety of the crops. The small fruits, as Gooseberries and Currants, were not so well protected, the foliage preventing the snow from immediately covering the blossom. In these some loss is expected, but as, especially in regard to Gooseberries, the show is very large, a sufficient quantity may escape to form a crop.

Blossom on most kinds of fruit trees is plentiful. In Apricots it is, perhaps, the thinnest, and Plums are not quite so crowded as last year. Apples and Pears promise exceedingly well, but a frost similar to that of last night, now the snow is gone, will render fruit prospects gloomy indeed. Against this dreaded contingency we have the favourable omen of a falling barometer, and all may yet be well.

This morning, on going into the vinery, the best Vine was hanging its leaves and branches, and was to all appearance killed. On looking for the cause it was found outside. The hayband enwrapping the stem had slipped and exposed 2 or 3 inches to the action of the cold. The sap had received a chill, or become actually frozen, and in another half hour the Vine would have been dead. A gardener must be ever on the watch. This little incident is recorded as a caution to others. —J. W., *Lincoln*.

I fear the late severe weather has made sad havoc with the fruit crops. On the 21st the wind was blowing from the east, and at noon the snow began to fall heavily, continuing nearly all the afternoon. The same night there was a severe frost, which lasted for the next six days. I append the temperature and snowfall taken at Loxford Hall.

	Min.	Max.	Fall of snow.
March 21st	24°	40°	0.40 inch
22nd	24°	40°	0.02 ,,
23rd	33°	39°	0.56 ,,
24th	31	44°	— ,,
25th	27	42°	0.11 ,,
26th	26°	42°	— ,,
27th	26	58°	— ,,

The Pear and Plum trees were far advanced in blossom, some of them in early positions were in flower. There does not seem to be much blossom on the Plum trees here, but the Pears are literally covered with unexpanded blossoms; on cutting these open it is very difficult to find one in which the parts of fructification are not quite black and dead, although the yet unexpanded blossoms are to all appearance sound. The frost has been even more intense in some localities in this neighbourhood. A gardener from Kent, whose place is only twelve miles from London, called here on the 25th, and told me that he had registered 14° of frost—that is, the temperature fell to 18° Fahr., a temperature low enough, where the blossoms are sufficiently advanced, to destroy all our prospects of a crop. In a small unheated orchard house I had a number of trees in full blossom, but not one of them is damaged as far as can yet be observed. The lowest to which the thermometer fell in this unheated structure was 31° Fahr. In the heated orchard house the Peaches and Nectarines had nearly finished their flowering. Pears and Plums were in full flower, but no doubt

they are safe. It was curious to see the Hyacinth beds nearly in full flower smothered with snow.—J. Douglas.

PLANTING SMALL GROUNDS WITH ORNAMENTAL TREES AND SHRUBS.—No. 2.

(An Address before the Rural Club of New York. By Josiah Hoopes.)

Vases.—Where the grounds are of sufficient size a handsome vase, of fair proportion, mounted on an appropriate pedestal, is always a pleasing object, especially when filled with healthy, suitable plants; and I have seen rustic vases formed of twigs and branches, with the base surrounded by Ivy, when the idea of fitness to the place was unquestioned. The handsomest vase I ever saw was of medium size, with a vigorous specimen of Russelia juncea in the centre, and trailing over the edge was Gnaphalium lanatum intermingling with the delicate stems of Ampelopsis Veitchii. The slender, shred-like stems of the main plant were covered with a profusion of scarlet tubular flowers, hanging over and partly covering a few Alternantheras with richly-coloured leaves. I recollect a pair of broad, yet very shallow vases, situated on either side of one of our finest residences, near Philadelphia, and, although some months since, the picture appears as fresh to my mental vision as if but yesterday. These ornaments were not 2 feet high, and were placed upon the ground without pedestals. The surface of one was completely covered with the metallic leaves of an Echeveria, the other with a very dwarf Alternanthera. Around the base of each was a bed of some large-leaved Ivy, encircled with a ring of the variegated variety.

Trees for Small Grounds.—I shall simply call attention to a few of the most desirable trees for what might be termed second-class places. For a group of low-growing trees, commend to me always certain species of the Magnolias. The M. conspicua, with pure white bloom; M. Soulangeana, with its white flower, striped and shaded with purple; M. cordata, with golden yellow, odorous bloom; and lastly, but very far from least, the beautiful M. Thompsoniana, with creamy-white fragrant flowers. We have here a group of four trees that cannot be excelled—hardy, beautiful in foliage and flower, and so entirely free from injurious insects that they seem to combine all the excellencies one could desire.

Another pretty group of small-sized trees may be composed of the Halesia tetraptera or Silver Bell; Laburnum or Golden Chain; and the Cercis canadensis, Red Bud or Judas tree. Still another group of the same size can be formed of the Prunus Padus or European Bird Cherry; Rhus Cotinus or Purple Mist; Chionanthus virginica or White Fringe; and the Cladrastis tinctoria, Yellow Wood, or Virgilia.

In a corner of the grounds a closely-massed group of the different coloured double-flowering Peaches will be very pleasing when in bloom; and where they will succeed nothing can excel the numerous varieties of Thorns. In the centre of the Peaches I would insert a tree of Reid's Weeping variety, a graceful drooping tree, and among the Thorns plant the weeping variety of it. These have a tendency to remove a certain uniformity of outline prevalent in all such masses. As we leave the small class of trees, and advance to those of larger growth, I unhesitatingly place in the front rank, if not at the very head, the Norway Maple [Acer platanoides]. Seldom do we find its equal in all that pertains to a specimen tree. With ample foliage of the richest shade of green, globular in form, perfectly hardy and healthy in almost every situation, it appears peculiarly adapted to stand alone upon a beautiful lawn. Another, although of a widely different character, is the White Birch (Betula alba), and its delicate cut-leaved variety. The Silver-leaved Linden succeeds well everywhere, and is undeniably a beautiful specimen tree, as well as the English Cork-barked Maple when branched to the ground. Although of large size, the Sweet Gum (Liquidambar) forms one of our most available ornamental trees. Beautiful at all seasons, with its curious corky bark, rich glossy star-shaped leaves, and picturesque form, it is well adapted for creating marked effects; and then in the autumn its brilliant crimson hue is remarkably attractive.

Either for grouping or as single specimens, the genus Fagus or Beech supplies us with a charming set of trees. Among the most striking in character I would place the Fern-leaved and Purple-leaved as especially fine. The cut-leaved Alder and the newer variety asplenifolia I consider very desirable for particular localities. There are very many other trees of beautiful form that are unfortunately not adapted for general planting. In the neighbourhood of Philadelphia we cannot use the Elms because the leaves are often perforated by insects; nor the Ashes on account of the borers; the Mountain Ash meets with the same fate, and the Thorns are destroyed by a fungus; the Horse Chestnuts become disfigured by midsummer, and so we have to rely on other trees.—(*American Horticulturist.*)

GARDENING IN RUSSIA.

My visit to Moscow, made as it was in the dead of winter, has left few reminiscences worthy of note, and, in some respects, visitors to that place should be warned that summer and not winter is the time to see this ancient and interesting city. In respect to seeing the life and the *beau monde*, winter is the time, as in June all who can, leave for the country or go abroad; but to see the environs, which are picturesque in the highest degree, the warm time should be chosen.

All the gardens were deeply covered with snow during my visit, and with the exception of the small Winter Garden in the Imperial Palace, I saw nothing in the horticultural line.

That garden was worth a visit, though by no means so noteworthy as those of Gromoff and Outine which I described some years ago in the pages of the Journal. One part of the Palace is divided from another by a street, and this bridged over by a conservatory, which thus forms a means of communication and a winter garden. The paths are bordered by rockwork, with Mosses and Ferns growing profusely over them; and the beds, for such they must be called, are planted with the various kinds of Palms, well known to all who have seen the decoration of houses abroad. There is a fountain and two statues of no peculiar merit. The heating is by hot air, flues running behind the walls and having openings here and there. The paths are covered with fine red sand closely resembling Dartford gravel without the stones, and the contrast with the luxuriant foliage is, as may be imagined, very lovely.

Of the Palace itself I will not speak, the subject being unfitted for The Journal of Horticulture. Suffice it to say that it is for quiet grandeur and simple beauty unique.

At St. Petersburg I made the acquaintance of one of the leading amateur botanists and horticulturists, Mr. Pastuhoff. His several large greenhouses and conservatories are well worth a visit. There are numbers of extremely rare plants of great value, and some few gigantic specimens of Palms. One Latania borbonica, for which a special house was built, measures 2 feet round the stem, and is indeed a noble tree.

The difficulties to be contended with in this northern climate are so many that it is really a wonder people undertake the care and anxiety inseparably connected with growing plants under glass. The fact of there being six months of snow and frost perhaps drives people to go to any expense and trouble with the view of deluding themselves that "spring is coming." Be it how it may, the humblest house has invariably its stands of plants of one description or another—Ivy on a trellis if nothing else is to be had.—Patelin.

NEW BOOK.

Alpine Plants: comprising Figures and Descriptions of the most Striking and Beautiful of the Alpine Flowers. Edited by David Wooster. London: Bell & Daldy.

We have from time to time noticed the periodical parts of this work as they were published, and have spoken of them as their merits deserve. With Part 18, just issued, the volume of the first series is complete, and forms a work of great interest to those who indulge the growing taste for the cultivation of those charming Alpines, which contribute so much interest and beauty to a garden. Should the work be continued we could wish that the figures of the plants were executed in brighter and more transparent colours than those are in the volume before us. The distempered style in which these are executed gives a hard and too solid a character to the figures, which is far from artistic. In the index, a reference to the plates as well as to the page would be useful.

CAPSICUM CULTURE.

I was glad to read Mr. Abbey's notes on Capsicum culture (page 249), because I have for some time thought it a subject worthy of discussion. I will now, however, only ask space for one or two supplementary remarks.

Capsicums should always be cultivated under glass, either

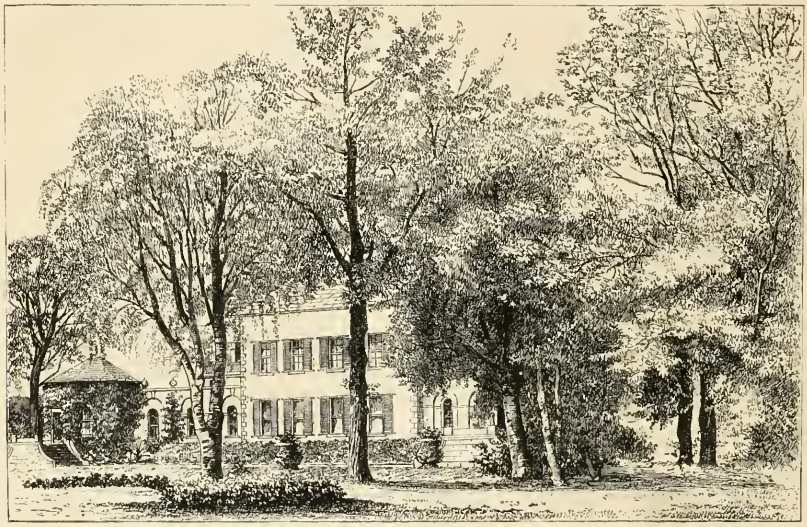
in pots or planted-out in pits. I prefer the pots, and use a rich loamy soil similar to that advised by Mr. Abbey, but without any bones, which are not at all necessary to success. Three strong even-sized plants are placed triangularly in a well-drained 10-inch pot, and as each of the plants will yield two dozen full-sized ripe pods of the large Long Red variety, a few such pots will suffice for the requirements of a large establishment, and will occupy less space than is often devoted to the growth of numerous plants of this class in smaller pots with less satisfactory results.

The cultural details are of the simplest. The seedlings may be raised, and the crop matured, in any glass structure in which a lively temperature is maintained. Let them gain sufficient size to show which are likely to become vigorous plants, select these, and at once transplant them from the seed-pan to the 10-inch pot. As the plants gain size afford them plenty of head-room, syringe freely, giving abundant and constant supplies of liquid manure, and the strong branching growth will be laden with a fine and most satisfactory crop of pods.—Edward Luckhurst.

NOTES OF A TOUR IN IRELAND.—No. 1.

Hamwood, Co. Kildare, the Seat of C. W. Hamilton, Esq.

There are few places in Ireland, or, indeed, elsewhere, more full of interest than Hamwood. Mr. Hamilton's name stands in the foremost rank in Ireland, as one of the most intelligent and practical of farmers. As agent and manager for



Hamwood.

the Duke of Leinster's property, and that of many other noblemen throughout the country, his name and fame had become pretty well known to me ere I reached Hamwood. In Mr. Hamilton we have a fine example of a true country gentleman enthusiastically devoted to a country life, and all that tends to make it cheerful, happy, and pleasant. How very different is the aspect of gardening at Hamwood, where the landlord is resident, and the moving spirit in all—the head gardener, in short—to that which it presents at many noble demesnes in this glorious country where the landlord is absent.

Hamwood is not one of the big places with a stately mansion and great ranges of glass houses. It is, however, replete with objects of interest in a gardening point of view, which many more pretending places do not possess. It is interesting in its being experimental, Mr. Hamilton's great pleasure being in testing the practicability of performing this or that, in testing various modes of cultivation, the different varieties of plants, &c. Here, on the lawn as we enter, right in front of the house, is a beautiful flower garden very tastefully laid out, and effectively planted with most of the usual subjects employed for this kind of work, such as scarlet Pelargoniums, one of the best scarlets being William Underwood; variegated Pelargoniums, Ageratums (very fine), Calceolarias and beautiful Iresine Herbstii. This is a plant which does exceedingly well in Ireland, whilst of the Coleus Verschaffelti, its conqueror here in England, scarcely one was to be seen. Some beds of a scroll pattern had a broad edging band of blue spar or tile in place of Lobelia, which against the grass had a pretty effect. Many varieties of Pelargoniums and other plants were here on trial, but these I need not now specially mention. The situation of the flower garden is somewhat exposed, about 300 feet above the sea level, great open grass meadows stretching-out in front, showing the most luxuriant of pastures, and first-class farming.

In a long avenue leading eastward from the house were planted many species of Coniferæ. The Pinus insignis in their peculiar lively green were particularly noticeable. Of these there were many examples of great size and beauty, from 30 to 50 feet in height—perfect pyramids of the most lovely green that can be conceived. Who could see this tree and not admire it? It is a great pity that in many districts it gets killed by frost. Those at Hamwood have been planted about twenty-five years. The Cedars planted at the same time were also growing in the greatest luxuriance and about 25 feet high. Pinus monticola, very handsome, was about 30 feet. Of Abies Menziesii, A. Nordmanniana, and Cupressus Lawsoniana there were also many fine examples, and in other portions of the grounds fine specimens of Abies cephalonica and Parsonsii; Araucarias 20 feet high; Cryptomeria japonica, very fine specimens; Sequoia sempervirens, and others. A novel feature in the avenue just mentioned, in a line in front of the Coniferæ, was produced by plants of the Bamboo and

Pampas Grass being planted alternately. It was expected that the Bamboos would prove a striking feature, but they were scarcely happy. The Pampas Grasses were, of course, very telling.

Passing on to the kitchen gardens I found the objects of interest increasing fast. Here we have an orchard house—a low span-roofed cheap structure, *à la Rivers*, having the trees planted out, but with the roots confined to a certain space. There was also a vinery of much the same construction with an extremely good crop of Grapes. At times I almost fancied myself with Mr. Rivers, at Sawbridgeworth: every step I took Mr. Hamilton had some interesting experiment to point out and to invite attention to, sometimes a success and sometimes a failure. Here we have a "Cherry orchard," a small compartment of little bush trees which seemed very fruitful. These were all safely protected from the depredations of birds by a covering of hexagon wire netting.

Along the sides of several of the walks were lines of Apple trees trained on the French cordon system. These looked very well, having immense crops of fruit. On inquiry I was informed that the common soil of the garden not appearing suitable, all these trees were planted in soil prepared for the purpose, and certainly, judging from the results, nothing could have been more satisfactory. A trench about 2 feet wide was simply excavated to the required depth, and the proper soil substituted. Is there not here a lesson for many who grumble at the bad quality of their soils and their inability to grow good fruit? In another part we find a plantation of dwarf bush Apples, planted in the style of Gooseberries, about 4 feet apart, full of fruit.

I could instance many more interesting doings in this most interesting garden, and tell of the extreme pleasure it is to meet such a true lover of horticulture as Mr. Hamilton, and to witness the great interest that both he and Mrs. Hamilton take, I may say, in every plant, and in all the operations of the garden. I had the further pleasure of being accompanied by friends to Hamwood, and to meet there Mr. F. Hamilton, of Coolayna, whither I shall next proceed.—B.

Gardens at Hamwood.

ONE OF THE MOST BEAUTIFUL AND MOST NEGLECTED OF FLORISTS' FLOWERS.

About fifty years ago ("Ah! here's one of the old school!") I resided in a country village, and passed there a happy early manhood. The vicar was one of "the old school," but he was a man of taste. I met beneath his roof-tree the Hayters, the Landseers, and other men of cultivated minds and appreciators of the beautiful. How *that* Edwin Landseer annoyed me then with his "Stop, stop!" whilst he laid down his gun and pulled out his sketch-book to trace the attitudes of my pointers! Well, the vicar was a man of taste; he had a garden, and he cultivated Apples, raised one from seed, which we christened "Gower's Nonpareil;" had a good collection of Roses round his bowling green. How many shades of those gone-before that green calls up! but one besides myself remains of those who then "rubbed and came in" there! A long walk led down from the vicarage to that bowling green, and on each side of that walk was a broad border planted with "one of the most beautiful, and *now* most neglected, of florists' flowers."

Though a man of taste, that vicar was not a man without prejudice—he was an Oxonian, and clung to the old heavy Brazenose port wine; he abjured Asparagus, but loved Sea-kale; and said "a Cucumber should be nicely peeled, peppered, vinegared, and then thrown on to the dunghill;" he anathematised whist, but played chess and quadrille. Quadrille! who plays it now? How I should like to meet with three sexagenarians who would "pass" with me. Well, one of the last "pools" I ever played was during a September in that "tranquil" village—some one will remember the verses in which that epithet occurs. In the morning I had taken Landseer (he was not *Sir* Edwin then) across to a farmhouse where hung one of his boyhood-painted pictures—a horse looking round at a provender-bringing groom—and I had enjoyed seeing him stand before it with a joyous exclamation, "It is not so bad, after all!" But what has all this to do with the neglected florists' flower? Only thus much—that most exquisite of flower-painters, Mrs. Pope, then said to me, "There is no flower that equals in its tints and their blendings The Ranunculus." *That*, in my opinion, is "one of the most beautiful and most neglected of florists' flowers." Why is this? Why is it so neglected that a gardener—a practical and known gardener—asked, when recently looking at

some Ranunculus blooms, "What flowers are these?" I assert, fearless of contradiction, that no flower surpasses the Ranunculus in brightness of colours, in symmetry of form, and variety of combination of tints. When massed in a bed it as far surpasses the Tulip and Anemone as the Moss surpasses the Briar Rose. The neglect of the Ranunculus is a mere caprice of fashion, and I do hope that amateurs and societies will aid in restoring to the prominence it deserves this brilliant flower.—SENEX.

AMMONIA *versus* RED SPIDER.

REFERRING to a communication, signed "J. W.," in your number for September 11th, 1871, headed "Ammonia *versus* Red Spider and Mealy Bug," would your contributor inform me through your columns what strength of guano water I could safely apply in soaking the inside border of a vinery 20 feet by 14? It is heated by hot water, but there is no evaporating-pan on the pipes. For a few years past I have watered the border with cow urine, and attribute the keeping-down and almost extinction of the red spider, with which the house was annually infested, to the ammonia arising from this application. In consequence of "J. W.'s" letter I am anxious to try his recommendation if I can steer clear of not overdosing the house, and so hurting the foliage of the Vines.—JOHN FERME.

In your correspondent's case I should hardly attribute the extirpation of red spider to the ammonia evolved from watering the border with cows' urine, as the soil would not part with any appreciable quantity to the atmosphere. The benefit that the Vines would undoubtedly derive from the watering increasing their vigour, would, just to that degree, render them less vulnerable to spider attacks. I should water the border as usual, seeing that good results are produced, and in addition use guano for generating ammonia in the atmosphere. I should in the first place recommend that evaporating-troughs be fixed on the pipes. If such troughs be not employed, then set large saucers or pans on the pipes, or about the house, and fill them with a strong solution of guano. Another mode of proceeding would be to sprinkle the paths with guano, and the guano with water, on closing in the afternoon. If the border is slightly sprinkled at the same time it can do no harm. From 1 to 2 ozs. of guano per gallon for troughs on pipes will be quite safe and certainly beneficial; double that strength if used in saucers not standing on the pipes; and for sprinkling, a handful spread over, say, 20 square yards of flooring is the quantity I use. This may amount to 3 or 4 ozs., and is sufficient. I do not use the guano every day, but only on bright sunny days, when the foliage of the Vines is fully expanded, and their absorbent powers the greatest on closing the house early in the afternoon. It is well to use it sparingly when the Vines are setting their fruit, and until they have completed the stoning process. When they have passed that stage I have mixed a pound in the evaporating-tray on the top of an Arnott's stove, and never perceived the slightest ill effect from it, but the reverse. In regular practice, however, the quantities previously named need not be greatly exceeded.

If for the sake of a change of food—and this is always good—it is desired to discontinue the cows' urine, I would top-dress the inside border with guano, at the rate of 1½ oz. to the square yard, and soak it in. If the urine is continued as usual, I would add as a top-dressing 1 to 2 ozs. of superphosphate of lime, as the urine is deficient in phosphates. Cows' urine is exceedingly variable in strength; when fresh it is very rich in carbonic acid and deficient in ammonia, but when putrefied with water the carbonic acid more than half vanishes, and ammonia increases to nearly eight times the amount.

With respect to the strength of guano water for Vines, I may add that three years ago I had a house of Grapes severely attacked with mildew. I reduced the atmospheric moisture to nil, and to compensate for excessive transpiration I soaked the border with 3 ozs. of guano and 1 oz. of salt per gallon. The good effect was immediate. Mildew was arrested, and a fine crop of Grapes ripened. As to the use of ammonia as an antidote to red spider, I may say that I never syringe the Vines, and have never seen a red spider on them for six years. Some years' experience prior to this also confirms the efficacy of this method.—J. WRIGHT.]

EXPLANATION NEEDED.

WE have received several letters testifying that "AMATEUR" supplied the writers with cuttings satisfactorily. We have heard also from him, and the failures probably were occasioned by his not living where the letters were addressed to.

WINTER BEDDING AT ST. HELEN'S, CO. DUBLIN.

THERE is at present to be seen, on the upper terrace at St. Heleu's, a successful example of what may be well and aptly termed "winter bedding," in contradistinction to what has already received the name of "spring bedding." The head gardener, Mr. Webley, planted last summer the two chain lines of beds on this terrace with various Sedums and Saxifrages, so as to have each bed carpeted with a distinct variety. When the tender succulents, such as Echeveria metallica and sanguinea, Sempervivum tabulæforme, Agaves, Yuccas, &c., which were "let in" or "set in" these carpet beds, were removed on the approach of winter, Mr. Webley allowed the "carpets" to stand as they were, but substituted for the tender succulents with which they had been dotted hardy fine-foliaged plants of various colours; so that at the present time every bed is completely covered or carpeted with various shades of colour—the green shades, of course, being predominant; varied, however, with such varieties as the golden-tipped Sedum acre, the purple hue of Sedum reflexum, and the grey Sedum pruinosum.

It is worthy of notice that all the plants used in this example of winter bedding are of the cheapest description, and that they increase with wonderful rapidity. They are principally Sedums—viz, acre, acre aureum, anglicum, reflexum, corsicum, and sexangulare; Saxifrages, Aizoon, pyramidalis, densa, cuneifolia; and Sempervivum californicum. The cost for half a dozen plants of each of these would be very trifling; and these half a dozen, if properly divided and treated, would each, in a year's time, cover any moderate-sized bed. Being hardy, of course there is no expense of keeping them; and thus, every garden of any pretensions might have the beds from which the summer plants are removed filled with bedding plants, which, if not quite so bright in colours as the summer bedding plants, are yet quite as interesting in winter, and, at least, do away with the cold and bleak appearance of the beds; which beds are, generally speaking, situated in full view of the mansion or dwelling-house.

In passing through the kitchen garden our attention was attracted by the appearance of a plot of coloured Cabbage of very dwarf growth. These, Mr. Webley stated, were the result of a cross between white variegated variety of the Fearnought Cabbage and the Red Dutch, the result being the production of varieties of several shades of colour, including pink, rose purple, red and crimson, white and cream, all the varieties, of course, being more or less variegated with green. The great value of this cross is its dwarfness and lateness in going to flower. At the present time the Variegated Kale is quite 4 feet high and running to bloom, whilst Mr. Webley's "hybrid" is not more than a foot high, and will not go to bloom for six weeks to come.—(*Irish Farmer.*)

A GOSSIP ON THE GENUS BEGONIA.

FIFTEEN or sixteen years ago, before the equivocal phrase "foliage plants" became familiarised by the force of daily use, Begonia Rex was introduced to and welcomed by British gardeners. It created quite a furor among plant-lovers, for it was remarkable and novel, there having been nothing in cultivation previously, except B. xanthina and its varieties argentea and marmorata, that approached in any respect the peculiar leaf-character of Rex. This so-called King of Begonias was an immense improvement on any of his nearest pre-existing blood relations, but his claim to a royal title was not very well founded—a statement that has been clearly verified in the short-lived run of popularity which he and his dynasty of "foliage" successors have had. When the glamour of novelty abated, it was seen that he could only be regarded as a very petty and rather coarse princelet in the great family of Begonia. He was, in fact, only a scion of one of the smallest branches of the family, the principal recommendation of which was an odd singularity of character, unaccompanied by any feature that could in any sense be put forward as ornamental. The prototype of this branch, B. xanthina, now hardly to be seen in cultivation, except in some of the botanic gardens, a circumstance which only the lovers of curious plants will regret, is one of the oddest of all Begonias. It appears to have borrowed the fashion of its brownish-olive leaves from the lop-ears of the

elephant, and the dingy whity-brown flowers are more like distortions of the common character of those of Begonia generally than anything else in the floral way that has come under the notice of the present writer. Rex, and the host of varieties of similar character that were introduced subsequent to it, inherited the peculiarities of the odd prototype in an exaggerated degree. The leaves remained true to the lop-ear pattern, but increased in size; and some variety in the extent and the manner of their colouring was the principal evidence of individualism the ever-increasing varieties severally presented. For a year or two it appeared quite an easy matter to improve the character of the leaves, or at least to introduce novel features into them; for the varieties soon became very numerous, the demand for them among the admirers of foliage plants of any pattern being very good. It was quite different with the flowers; they declined to be improved a bit, and are the same dingy curious objects to-day that they were in the palmiest days of Rex. Perhaps it was never seriously tried to improve the flowers, though it was alleged that it was attempted, but failed, through our Belgian brethren, who have the honour of having set up Rex and his dynasty, not having hit on the right way of coaxing Nature into a mood favourable to their designs on the refractory floral organs. Ill-natured people, non-admirers of the lop-ear Begonias, contemptuously insinuated that the insignificance and comparative ugliness of the flowers were to be accounted for by the law of compensation—that it was more than the most inconsiderately sanguine could expect that Nature should expend so much force and matter in the production of leaves, and be equally lavish when the flowers came under her hand. It is not worth while to inquire whether these cavillers spoke the truth in this matter, but it is quite certain they truly predicted the fate of the Rex dynasty when they said it would fall; for it began, after a brief period, to decline in popular favour, and a few years ago had sunk to zero, whence there is no hope that it will rise, in the present generation at least.

It does not appear that its decline has been very much regretted; no one, at least, has thought it worth while to come forward with any plea on its behalf: but there certainly is a very general feeling of satisfaction that it has gone the way of all despotisms. While it lasted, its influence was supreme over many; and it contributed in a large degree to impede the progress of improvement in the stocking of our glass houses during a period of perhaps unparalleled activity in botanical exploration, which resulted in the introduction of many beautiful plants of different families, including also valuable species of the Begonia race itself, hitherto unknown to cultivation. A Begonia fever would be rather a healthy horticultural malady, provided it were somewhat catholic in the exhibition of symptoms, and that it embraced all that the family contains, about which an honest fever might reasonably be got up. It is one of the largest of the flowering families of stove and greenhouse plants at present in cultivation, embracing about four hundred species as known to botanists, and perhaps one-third of these are, or have been, introduced to cultivation. Like all large genera, there is an immense range of variety in its members; elegance in inflorescence, with striking distinctness of form and habit, being exemplified in every species more or less, and in not a few brilliancy of colour intensifies the other charms. What, for instance, can compete for loveliness and grace with B. fuchsioides? As a pillar plant and covering for a wall where it may extend itself in comparative freedom, it is unsurpassed. B. Putziesii is scarcely less beautiful, but is better adapted for pot culture as a specimen plant. B. urophylla, manicata, and hydrocotylifolia are among the most profuse, yet elegant and distinct, of flowering plants, and are, moreover, winter and spring flowers. B. nitida and Dregei flower continuously the year round, if they are kindly encouraged thereto. These are all evergreen species, and there are many of the same habit worthy of being named along with them, but limited space forbids an extended enumeration. The only other, therefore, in this class which I shall name as one that should be in every collection of plants is B. odorata, a pretty and pleasantly fragrant species, which for the latter quality alone deserves to be largely cultivated for cut-flower purposes.

There is another no less interesting and valuable class of Begonias that have all but entirely disappeared from cultivation—namely, the herbaceous species. The best known of these at the present time is B. boliviensis, a curious recent introduction of good decorative points, and B. discolor, which is occasionally seen in cottage windows in some parts, but most rarely in private gardens. Other species, such as the brilliant B. diversifolia and the interesting B. octopetala, are perhaps lost to cultivation; they are, at least, amongst the rarest of cultivated plants, if they do hold a place anywhere in this country. The great beauty and usefulness of the latter of these last-named species render it a very regrettable thing that it should have disappeared from cultivation. The flowers, as the name implies, are furnished with eight petals, and are the largest of Begonia flowers with which I am acquainted; they open in winter early, and continue to be produced for many weeks in close succession on individual plants; while with a little management in bringing relays of them into heat at successive periods, it may be had in bloom the winter over. Such a plant should be in every collection of in-door winter flowers, and is worth a journey round the world to find.

No one who knows anything about the cultivation of stove and greenhouse plants requires to be told how to set about the culture of Begonias. There is perhaps no more easily cultivated class of plants—and that is a great point in their favour, when balanced with their excellent decorative qualities. A good rich open loamy soil, with ample drainage, so that their generally great requirements in water may be met without risk of stagnation, and a warm moist atmosphere, the moisture being supplied by means of the source of heat rather than by the syringe, are conditions under which all evergreen Begonias will thrive. The herbaceous species require different treatment at different seasons of the year. They like a good warmth and moisture in their growing season; but after flowering is over, they require to be brought gradually to rest in a cooler atmosphere. One great mistake I have very generally seen practised with these is that of drying them off too much and too quickly, whereby their tuberous roots, not unlike those of the Caladium, are hastened or prematurely and insufficiently ripened, and of course they keep badly, and turn out dead in spring or at starting time. If well ripened, the roots will bear wintering in any place that does not fall below 35°. B. octopetala requires the treatment of its class, in all respects adapting it to its natural period of rest in early summer, or as it falls in if treated successionally.—W. S.—(*The Gardener.*)

ENTOMOLOGICAL SOCIETY'S MEETINGS.

The first March meeting was held on the 4th, Professor Westwood, President, in the chair. Amongst the books presented to the Society's library since the preceding meeting were especially to be noticed a new part of Gemminger and Harold's great catalogue of Coleopterous insects, and Mr. Matthews's monograph of the Trichopterigidæ, microscopical beetles of great interest from their very remarkable structure.

Mr. F. Smith read some further notes respecting the storing of grain by ants at Mentone, having, by confining a colony of these insects in a glass vessel, distinctly perceived them feeding on the grain. Mr. S. Stevens exhibited an apparently undescribed moth belonging to the genus Phycita, from the Essex marshes opposite Gravesend, remarkable for its resemblance to one of the pearly-winged species of Phycita. Professor Westwood exhibited living specimens of the Argus reflexus, of which it appears that a colony has established itself in Canterbury Cathedral, as well as another species of the same genus with a quantity of its young, presented to him by Dr. Livingstone, who had found it in Central Africa, where it enters the feet of the natives between the toes, causing great inflammation. Mr. Albert Müller exhibited galls received from Bombay by Mr. F. Moore upon the leaves of Cinnamomum nitidum, formed by minute mites of the curious genus Phyboptus, being the first notice of the occurrence of these creatures in the East.

Mr. H. W. Bates exhibited two series of specimens of beetles belonging to the genus Carabus, one containing British species, and the other species from Eastern Siberia, with the view to disprove the supposed zoological-geographical identity of the vast division of the globe which Dr. Sclater had united under the name of the Palæarctic region, as distinguished from the Ethiopic, Neotropical, &c. He was, on the contrary, disposed to consider that such great geographical divisions of the globe were quite arbitrary. Of at least fifty well-known European species of the genus Carabus, and as many peculiar to Siberia, only one, Carabus granulatus, was common to Eastern Siberia and Western Europe, whilst one was common to Eastern Siberia and Western North America. Mr. Bates was indeed inclined to question whether the partition of the globe from a zoological point of view into great divisions, as had been proposed by various naturalists, especially more recently by Sclater and Huxley, was not based upon arbitrary evidence, and consequently untenable. He looked, in fact, upon the later geographical changes effecting the present configuration of land and sea as more likely to afford grounds for the geographical distribution of animals. From the same point of view Dr. Sharp

stated he had observed, that whilst species of insects inhabiting mountains were extremely local, those which were found on plains were widely dispersed. He also mentioned the curious fact that whilst the species of Oxytelus, one genus of Staphylinidæ (rove-beetles), found in England were identical with those found in Siberia, all the Siberian species of Bledius, another genus belonging to the same family, were distinct from those of Western Europe.

The following memoirs were read:—On the species of butterflies first described in the great work of Herbst and Jablonsky, and which had been greatly neglected, by Mr. Kirby. 2, Descriptions of new exotic species of shield beetles (Cassididæ), by Mr. Baly, all the species except one being from Ecuador. 3, An elaborate memoir on the genus Acentropus, a small white insect which had long been considered as Neuropterous (and, indeed, was still so by Mr. Newman), but which Professor Westwood had proved thirty years ago to be a moth; Mr. Dunning supporting that view, and considering the insect to be a Cramboid Hydrocampa, of which, notwithstanding the opinions of various recent authors, he believed that there was only a single variable species, A. niveus.

The second March meeting of the Entomological Society was held on the 18th, F. Smith, Esq., V.P., in the chair. Mr. Higgins exhibited several beautiful species of Cetoniidæ from Java, including some apparently new. Mr. Bond exhibited a dimorphic example of Acronycta leporina, one side of which was coloured and marked as in the typical form, the other side as in the variety bradyporina, the two forms having been at one time considered distinct species. Mr. Smith said the remarks on Siberian insects at the last meeting had induced him to make a minute examination of specimens of the hornet (Vespa Crabro) from Europe, Siberia, and North America, and he found that individuals from all these countries presented no appreciable variation. The Asiatic V. orientalis was, however, quite distinct. Mr. Müller read notes on Scnopalpus striatus, which beetle he considered to be a wood-feeder, especially attached to Fir wood: hence its occurrence in a hose warehouse at Leicester could only have been accidental.

The Secretary read a long account of the ravages of locusts in South Australia, in December, 1871, as related in the "South Australian Register" for January 2nd, 1872. The insects were described as coming in swarms that darkened the air, eating all vegetation in their way. It was found that those individuals that had partaken of leaves of the Castor-oil plant died immediately, and Larkspur seemed to be also inimical to them. Mr. Horne related his experiences of locusts in India. The Castor oil plant had certainly no injurious effect upon Indian species, though they were affected by leaves of the Tamarind tree.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Every important operation out of doors has been interrupted by the incessant hail and snow storms, which have saturated and chilled the ground. I must refer, therefore, to last week's calendar, as the work there recommended has doubtless been delayed. Wait till the weather change before planting out *Cauliflowers*, *Lettuces*, &c., wintered under glass, but in the meantime harden them well by giving them all the air possible without damaging them by direct exposure to frost. When the weather permits, sow Snow's Early *Broccoli* for autumn use, and the Enfield Market and Sugarloaf *Cabbages* on a warm border for summer supply. The necessity for some sort of protection for early *Carrots*, *Radishes*, and similar crops against the driving storms of hail has been lately tolerably evident. The forward *Peas* and *Beans* should be protected with boughs. Sow more; the Dwarf Prolific Bean and Knight's Marrow Pea are suitable for this sowing. Sow *Carrots*, *Parsnips*, and *Onions*. Plant *Potatoes*. The Early Six-weeks *Turnip*, *Lettuces*, *Radishes*, and similar vegetables which last a short time, should be sown fortnightly on light soils.

FRUIT GARDEN.

Of course, Peaches, Nectarines, and Apricots are securely protected from frost; in some respects the late severe weather may do good by protracting the blooming period, but the better kinds of Plums, Pears, and Cherries should have protection when they are in bloom.

FLOWER GARDEN.

Repair displacements of soil or gravel on slopes or precipitous walks with as little delay as possible, for every shower will widen the channel. Gravel put on sloping walks should be almost in the state of mortar prepared for use; well trodden and afterwards rolled, it forms a hard and durable walk. Roll and mow grass, trim edgings, and finish rough digging in the pleasure grounds. It is often desirable to keep Ivy close to a building against which it clings, in that case it should be defoliated every year about this time, and it will again be speedily covered with fresh and vigorous leaves. As soon as the weather has become a little more favourable, a good collection of annuals, whether hardy or tender, should be sown. For the latter a slight hotbed is requisite. The more hardy kinds should be sown in patches and covered with a garden-pot, taking care to remove it in the daytime when they are coming up, and covering them at night. If any rough or unimportant shrubbery borders require a little gaiety, and business presses, a mixture of some of the hardier sorts might be made—such as Collinsias, Clarkias, Mallows, Larkspurs, Candytufts, &c.—and strewed at random over the open parts of the border after a thorough cleaning. The late heavy rains have been by no means congenial to the roots of Tulips; in fact, unless the beds are situated on a porous subsoil or well drained there will be positive injury. The meshes of the nets used to protect the beds ought not to be very small, otherwise the foliage is apt to be drawn-up and the stems will rise weakly. Particular attention must be paid to those whose foliage is cankered, cutting it away to the quick with a sharp knife. As soon as the beds are sufficiently dry the surface soil should be carefully stirred, if not previously attended to. Where the seed of Polyanthuses was sown early and placed in heat to vegetate, the pans or boxes should be removed to a cooler situation, gradually inuring the tender plants to the open air. As the trusses of the old plants rise, if intended for exhibition, they should be carefully examined and the pips thinned out according to the strength of the plants. Occasional waterings with weak liquid manure will be found serviceable. Auriculas will require the greatest attention possible. The lights of the frames should be carefully examined in order that drip may be prevented, for should a drop of water fall into the expanding pip of the Auricula it will be inevitably spoiled for exhibition, and the sooner it is cut away the better. Cover well at night with one or two mats, especially if there is the least indication of frost. During the day every possible means must be adopted to insure plenty of air to prevent the plants being drawn. No time must be lost in getting Carnations and Picotees potted off. As old flowers of considerable merit I may venture to enumerate the following:—Scarlet Bizarres, Holliday's Grand Master and Lord Rancliffe. Crimson Bizarres, Slater's Gladiator and Holliday's Thomas Hewlet. Purple Flakes, Barringer's Earl Spencer and Holliday's Queen of Purples. Scarlet Flakes, Holyoake's Dido and Holliday' Scarlet Gem. Rose Flakes, May's Ariel and Lorenzo. If seed of Ranunculus is not already sown, sow immediately. Attend to directions previously given. This is a good time to strike cuttings of Pansies; put them in round the sides of small pots, plunge them in sand on a north border, and cover them with a hand-glass.

GREENHOUSE AND CONSERVATORY.

The judicious regulation of temperature in plant houses, with adequate attention to the admission of fresh air and supplies of moisture, are recommendations which demand attention, but which this uncertain and ungenial weather renders of somewhat difficult application. The great proportion of greenhouse plants are now in activity, and a great deal depends on the treatment they receive at this moment. Rain water, where it can be collected, should always be prepared for watering. Hardwooded plants whose pots are full of roots, and which it is not convenient to repot just at present, should be carefully attended to with water, for if allowed to flag many plants, particularly such as have fine hair-like roots, scarcely ever recover. The growth of plants intended to bloom next autumn and winter will require attention. The early-started Chinese Azaleas and the common and Otaheitan Orange will be making growth, which should be encouraged by frequent syringing and a genial temperature of about 50° by night. Straggling shoots should be at once removed, and to obtain perfect flowering specimens the new growth should be uniform, to enable the wood to ripen at the same time. Some of the earliest-bloomed Camellias may be added, and occupy the shady part of the house. Epacrises are another useful family for winter flowering, and will stand a moderate forcing. Select the early-blooming section, and after pruning place them in a moderately warm temperature, and by damping frequently encourage them to break. To the above may be added various plants, which, if required to bloom by Christmas, should be encouraged to make an early growth preparatory to an early pirening and rest. I prefer potting such of the above as require shifting after the growth has become somewhat ma-

tured. Prune-in Erica hyemalis and other winter-blooming Heaths as they go out of flower, to bring them into order for potting. The practice of dwarfing trees and shrubs, &c., which the Chinese pursue with such assiduity, is diametrically opposed to our method, which generally consists in developing plants to their utmost power of expansion; yet admitting the absurdity of a fashion that would strive against Nature, we might, nevertheless, profit by a lesson from them when restricted in space. We are yet compelled to retain a certain number of decorative greenhouse plants, which, if permitted to increase in size would occupy an unfair proportion of the plant house. It becomes, then, necessary to adopt the Chinaman's custom, and to avoid those conditions that conduce to luxuriant growth; and in some cases, still following his practice, to use the pruning-knife to both branch and root, in order to adapt the subject to the limited accommodation. Continue the propagation of Heliotropes, Verbenas, and bedding plants generally. Sow such plants as Balsams, Thunbergias, Cinerarias, Chinese Primroses, and Cockscombs.—W. Keane.

DOINGS OF THE LAST WEEK.

KITCHEN GARDEN.

The frost and snow have been succeeded by weather—mild, indeed, but so wet that little has been done in the open ground, except removing protection and guarding young seedlings of Peas, &c., from the attacks of vermin. With the exception of our early crop of Beans, every seed of which was grubbed out, everything that received a dressing of red lead has remained untouched.

As soon as the ground is dry enough we will sow the bulk of our winter vegetable seeds. We refer our readers to previous numbers regarding forced vegetables. It is a good plan, for keeping up a regular succession of Peas and Beans, to sow, until June and July, just as the former sowing appears above ground. If in these successional sowings more than one variety is used, the supply is likely to be more certain.

Frost and Early Sowing.—We find that many of our readers think they have sown rather early. The frost and the snow have done injury in many places. For most crops to come to perfection there are certain amounts and a certain length of a requisite temperature necessary, and therefore it is that early sowing is not always attended with early production. Besides, on examining some of our early sowings of Onions, Carrots, &c., though not feeling much alarmed, we do not feel quite satisfied. The fall of snow greatly lessened the effects of the frost, as when the seeds were fairly germinated, and the little blade or plumule above ground, it would so protect them that the frost would do little or no injury. The period of danger is just at the point of germination, when the rootlets begin to appear and the seed leaves are preparing to show themselves. Then sudden dryness or extra cold will often totally destroy the seed, and therefore it is well to examine and sow again if the first sowing has been much injured.

Mouse and Sparrow Traps.—Thanks to Mr. Record for the plan given at page 270, which we will certainly try, as it has simplicity to recommend it. Like all such traps, however, the success will greatly depend on the light and peculiar hand of the setter. Even though I used light gloves I never had much success in trapping moles or rats, whilst to my mortification a labourer, with no seeming care whatever, had only to set the traps and the victims were secured. There seemed to be no difference in the setting, except that of the two my traps seemed the more carefully set. Every trap after a time becomes familiar and is avoided. When mice were very numerous we have found nothing more fatal to them than sinking glazed jars in the ground, or, better still, glass propagating glasses, with 2 or 3 inches of water at the bottom, with a float in it of thin wood containing meal, cheese, or roasted corn. Whenever a mouse jumped down and had its feet wet it had no chance of getting up the glass or glazed earthenware sides. I recollect once taking out ten mice from such a sunk vessel 8 inches in diameter; but though successful for a time, ere long not a single mouse could be trapped in this way.

Cucumbers and Front Air-giving.—The changeable weather has shown to many that air-giving to houses or pits covered with glass is a matter worthy of consideration. We have heard of several cases of orchard houses, the roofs of which were covered with large squares, that have suffered severely, the blooms dropping owing to the extreme heat from the sun and the want of early air-giving. In lean-to's this is very essential. A little air at top early in the morning is of more importance than much afterwards. In these clear frosty days, giving even a limited amount of air early prevented tender plants suffering from a very free admission of cold dry air afterwards. Hence, where much heat is wanted, as in the case of stove plants and Cucumbers, it is not advisable to give much front air in frosty weather, unless the air is heated and moistened before it enters among the plants. A great preventive against the necessity of admitting too much cold air, and especially in small houses, is being observant, and, as far as possible, preventing the heating medium becoming very warm when much sun is expected. When these matters are attended to we give but a small quantity of air to our Cucumber pit, even in summer, which we do by tilting the sashes behind. Our front air, which we find ample, is confined to an opening, the size of half a brick, in the front wall opposite the centre of each 4-feet light, the air that enters coming at once in contact with the front pipes for top heat. These half-brick openings are furnished with wooden plugs, the one end fitting the opening, and the other end tapering into a wedge shape. At this season we merely pull the plug out a little, and the air that thus enters helps to keep the plants short-jointed and stubby. Even in summer it is seldom we take these plugs out altogether. We are quite aware of the importance of the improved modes of ventilation, and would like to have them, but many keen amateurs cannot afford the expense, and do not mind a little more trouble with a simple cheap plan. Now, for a Cucumber pit heated by hot water, we know no plan simpler for front air than this. An opening is left in the front wall, either opposite to, or, better, lower than the front pipes for top heat, of 4½ by 2½ inches. A wooden plug, tapered like a wedge, is made to fit it. A ring or a nail is fixed to the end to catch hy to draw it out, and during winter and early spring the drawing-out of that plug merely a couple of inches is generally found quite sufficient if care is taken to keep the heating medium low when the sun comes strongly out. In sudden extremes, from dulness to extreme brightness of weather, there is often a good deal of burning and scorching among tender plants, and want of air and want of shading are blamed for the result. This may, indeed, be often correct, but we have no doubt that such results are frequently produced by a strong fire heat and a natural sun heat meeting, and the too free introduction of cold dry air at the back and front.

FRUIT GARDEN.

See previous numbers. This wet dull weather is very unfavourable for the flavouring of Strawberries. All we can do is to keep the plants rather more airy, and gather the fruit when the soil in the pot is somewhat dry. Smoking must be resorted to if there is any appearance of green fly, but smoking with tobacco should always, if possible, be avoided as the fruit approaches the ripening point.

ORNAMENTAL DEPARTMENT.

Rolled the walks and lawn to keep them smooth and to prepare the latter for mowing, as the grass is growing wonderfully. As soon as the ground is dry enough all hardy annuals may be sown. Those scarce or a little tender may be covered with a pot, which may be tilted up with a stone or piece of wood when the seedlings have appeared, in order to harden them off. These should be suitably thinned as soon as they will bear it, as from three to six seedlings in a patch will make a better display than double or treble the number. Sowed more half-hardy and tender annuals under glass, and prepared for pricking-off seedlings, often taking them at first in little patches. In watering pots and pans of small plants it should not be done overhead, however fine the rose, but the surface of the pot should be gently sailed with water all over, by pouring the water from a spout against a shell or piece of crockery held against the side of the pot, so that the spout may make no hole in the soil. This simple precaution will prevent fogging and damping-off of little plants, whilst watering overhead will be very likely to promote such a result.

See what was lately said about shading and protecting the best bulbs and roots out of doors, fastening Pansies, potting Carnations, &c. The Perpetual kinds intended for winter blooming generally do best when planted out in rather firm rich soil, and then carefully lifted and potted in September, adopting much the same course as many follow with their Chrysanthemums, the advantage in either case being that the care necessary during the summer is reduced to a minimum.

Calceolarias and Geraniums, turned out into earth trenches and protected as described the other week, have stood the frost and the snow well. The difficulty this season is how to get

such plants out to harden-off, as our old resources are of no avail. To have strong seedling Cinerarias in the beginning of winter the seeds should be sown now in a gentle hotbed, and the same may be said of all varieties of Chinese Primroses. These and Cyclamens are worthy of all the care described in a late number. It is now late enough to sow Cyclamen seed, even with warm treatment, in order to have them in free flower during the following spring. The whole tribe are most useful as cut flowers for small glasses and bouquets, and yield a large supply for the space they occupy.

We have alluded above to having soil warmed a little for potting. We have no doubt that the attacks of insects after fresh potting are often due mainly either to watering with too cold or too warm water. In either case the roots suffer, and often severely, though they show no visible signs. See that the water is at least of the temperature of the house; water only when required, and, to be sure, do not scruple to ring the pot, or even turn up the soil with a stick or the finger, in order to be sure of its condition beneath.—R. F.

TRADE CATALOGUES RECEIVED.

B. S. Williams, Victoria and Paradise Nurseries, Upper Holloway, London.—*General Catalogue of Plants.*

Charles Turner, Royal Nurseries, Slough.—*General Spring Catalogue for* 1872.

A. Forsyth, Brunswick Nursery, Stoke Newington, and 120, Mount Street, Grosvenor Square, London.—*Descriptive Catalogue of Chrysanthemums, Dahlias, Geraniums, &c.*

TO CORRESPONDENTS.

*** We request that no one will write privately to any of the correspondents of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely to The Editors of the Journal of Horticulture, &c.*, 171, *Fleet Street, London, E.C.*

We also request that correspondents will not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, if they expect to get them answered promptly and conveniently, but write them on separate communications. Also never to send more than two or three questions at once.

N.B.—Many questions must remain unanswered until next week.

White Nonpareil (*C. Ross*).—No doubt was suggested by the Committee as to the name being correct. Our report was awkwardly worded.

Pears, &c. (*Centurion*).—The Pear Duchesse d'Hiver is not worth growing, and the fruit is likely to remain as you say it is—"green, hard, tough, and shrivelling." No doubt it is more likely to be melting from a south wall than from a standard, but we doubt very much if it will ever be worth such a position. Winter Crasanne is another of the doubtful late Pears. We have sometimes seen it passably good, and still more frequently worthless, except for stewing. Winter Nelis would do very well double-grafted. Prune Quinces when you prune other fruit trees. Perhaps your tree has been growing vigorously, and hence it has only just begun to bear. Do not prune it too severely, or you will encourage a growth of wood instead of a production of fruit. It is not too late to plant Raspberries. We do not know "Early" Catherine Peach. You can bud the Almond with either Peaches or Nectarines.

Seedling Azalea (*A. D. S.*).—No one can form a judgment on such small pieces. Send specimens packed in damp moss to the Floral Committee of the Royal Horticultural Society, South Kensington, on April 16th.

Barley after a Succession of Crops of Potatoes (*C. G. D.*).—We are unwilling to differ from your neighbours as regards applying dung or other manure to ground that seems exhausted by Potatoes, for we have often found advice tendered on the spot the best that could be given; still we think manure might be tried with advantage, and if too much seed be not used we think the crop might stand upright till harvest. As your purpose in a great measure is to renovate the land for future garden crops, we would go a step further, and, in addition to sowing Barley, as early as you can, about the beginning of May we would sow Clover amongst the Barley, rolling in the seed, and if all go on well we expect the Clover will be half the height of the Barley by harvest time. Allowing the Clover to remain one year, you would, in 1874, have all the advantages of virgin soil to begin with. Sowing Clover with Barley is a common practice in some of the best corn-growing districts, and we have never heard of a complaint of too much straw, even when sheep had been folded on the previous Turnip crop, and additional food given them to increase the amount of manure. We certainly think your neighbours, who oppose your intended dressing the land before sowing, must either have reasons unknown to us, or be in error.

Various (*Q. Q.*).—The best artificial manure is guano, which may safely be applied as a top-dressing to every description of kitchen-garden crop. It may be used to all the crops you name. It is advantageous to mix one part salt with two parts of guano. A peck to 36 square yards is a good dressing; apply it in moist weather, or just before rain. Good autumn-struck plants of bedding Geraniums should be planted a foot apart, and spring-struck plants 9 inches apart. When very close the plants become drawn and weak, and are not so easily wintered as when they have more light and air. You do not say when the Onions were sown. If they were sown in spring, it is likely they will run to seed without attaining any considerable size of bulb, but you may prevent their doing so by breaking off the flower-stalk. You need not transplant them unless they are very close together. They should stand 6 inches apart, if closer transplant. You can give them a trial, and they will be good for drawing young, if for no other purpose, and should they bulb you will have some very fine ones. We do not know the price of an Abyssinian pump. Write to some of those advertising pumps, &c. It would not increase the chance of water in dry weather if drains were dug so as to terminate close to the proposed pump. You are almost sure to have water in the soil you describe. Stocks, Asters, and Phlox Drummondi sown in a frame over a slight hotbed in the third week in March, will need protection until the beginning of May, but the lights and frame may be withdrawn at the end of April, after which the plants should be protected with hoops and mats at nights and during frosty days.

Tobacco Culture (*An Old Subscriber*).—Sow the seed now in a pot or pan filled with light rich soil, press the surface gently and evenly, scatter the seed rather thinly, place in a hotbed with a temperature of 65° to 70°, and keep the soil just sufficiently moist, and when the seedlings appear keep them close to the glass, and water carefully. As soon as the plants have a pair of rough leaves prick them off about an inch apart in pans or boxes, return them to the hotbed, and shade for a few days until established. In the course of another fortnight or three weeks they may be potted-off singly in 3-inch pots, returned to the hotbed, and in about a week or ten days removed to a house with a temperature of 55° to 60° at night. When the pots are filled with roots the plants may be shifted into 5-inch pots, and be grown on, placing them in a cold frame, and hardening-off well before planting out, which may be done early in June. The soil for the plants cannot be too light and rich. Water well in dry weather. If grown for their leaves, plant a yard apart.

Ferns for Wall (*C. T. H.*).—We suppose you intend the Ferns to grow in the crevices of the wall, in which case you must have some rather large crevices; or, after picking out the mortar from between the joints, stop them with sandy peat, just leaving room for the introduction of the roots of the Ferns. These should be made secure with soil, and should be so planted that the rhizomes or crowns may be just level with, or a very little within, the face of the wall. The wall must be shaded from the bright rays of the sun, and from wet. On an old wall we have seen Aspleuium Ruta-muraria, A. Trichomanes, A. viride, Allosorus crispus, Blechnum Spicant, Cystopteris fragilis and var. dentata, Asplenium Adiantum-nigrum, and small plants of Lastrea Filix-mas, and Scolopendrium vulgare. We have no doubt many others would succeed, only they were put in small, and had a good crevice filled with soil, the wall being kept wet from March to October. In-doors there is nothing so fine for a wall as Asplenium marinum and Adiantum Capillus-Veneris, and they would probably succeed with you out-doors. We should give them a trial.

Replanting Vines—Sowing Orange Pips—Peach Aphis (*A Subscriber*).—You may take up the Vines that were recently planted, and of which the canes were partly buried in the soil. They will not suffer, though the shoots are an inch or two in length. Do not cover the roots at the collar more than 3 inches deep with soil. Water and shade, if the sun be bright, for a few days. On the back wall of a vinery you may grow Figs or Oranges, or Camellias if you want flowers. Vines will succeed in an unheated house on which the sun does not shine after midday, but you must select the hardy sorts. Seville Orange pips should be sown now in light soil, and placed in a hotbed. The seedlings should be potted when they show the rough leaves, and grown on in a house with a gentle heat—such as a vinery. Any kind of Lemon will answer as a stock. It is of course necessary to graft or inarch them, though they would in time fruit, but that is considerably hastened by grafting. For green aphis on Peach trees in blossom we cannot advise anything but fumigation with tobacco, which we should practise, though we had a house not smoke-tight, choosing a calm evening, shutting up as closely as we could, and covering up the places most likely to let out the smoke.

Setting Boilers (*Camgee*).—There is no separate work that we know respecting the setting of boilers and the management of furnaces. We are egotistical enough to believe that the best articles that were ever published have appeared in the pages of the Journal. There is no royal road to particulars in these matters. You must condescend to learn the wherefores from your boiler, and act accordingly. The very fact that the pipes boil over is a proof that your boiler is well set. It is a waste of fuel ever to allow the water in hot-water pipes to boil, and pipes at boiling heat will less or more injure the atmosphere of the house. Such boiling must be prevented by the use of a damper, and keeping the ashpit door duly regulated; on the latter we must chiefly depend. Keep air from the fire and it will burn slowly, keep it away entirely and the fire will go out, just as a bird or a rabbit will die in the exhausted receiver of an air-pump. Then, again, if the water cools so much when you bank the fire up with ashes you must note and regulate it accordingly, and use fewer ashes, and give a little air when you wish the fire to burn slowly. As regards keeping the water boiling, without boiling over further than stated above, we have no sympathy with you whatever, because for a greenhouse we would never wish the water to be within 30° or 40° of the boiling point, and constant heat is not required.

Potted Plants Failing (*J. Woodliffe*).—The soil is nearly all peat. It requires more loam mixed with it for the usual greenhouse plants. Acid fumes, if of any of the compounds of sulphur or chlorine, would injure.

Cross-breeding—Insufficient Room for Plants (*A Young Reader*).—There is no work on cross-breeding plants, but you will find fuller instructions for the management of plants in "Keane's In-door Gardening," which may be had by post from our office for 1*s.* 7½*d.* We can only refer you to our pages as to the management of your house, and we do not see how you are to increase your stock of plants without adding to your accommodation for wintering, and propagating them in spring, with means for hardening-off the plants. Upon any subject that you require information we shall be glad to assist you, but to answer your questions on the general treatment of plant houses and frames would take up several numbers of our Journal, and only be a repetition of our weekly calendar of operations.

Amaryllis Belladonna Treatment—Sowing Hepaticas (*F. W.*).—Instead of planting out the Amaryllis Belladonna, we advise you to keep them in pots on a light airy shelf in the greenhouse, in pans filled with wet sand, constantly kept wet, even when the plants are dormant; do not water at top while the plants are at rest. Do not repot them until the bulbs split the pots. They should be well supplied with water until the leaves begin to turn yellow. If you plant them out of doors choose a warm dry border, and plant about 2 inches over the crown. About a foot from the front wall of a greenhouse, or other wall with a south aspect, will suit. Plant them now, protecting them in frosty weather, and water them freely up to June. Before autumn cover the bulbs fully 6 inches deep with soil. Good loam, with a free admixture of leaf soil and a little peat will grow them well. Hepatica triloba seed may be

sown now in a slightly shaded position in good rich light soil, the seed being covered with fine soil about a quarter of an inch deep, and kept just moist. Let them stand a year, and then take them up and plant them out 6 inches apart every way.

SELECT ANNUALS AND VEGETABLES FOR EXHIBITION (*Amateur*).—For July. *Hardy Annuals.*—Clarkia pulchella integripetala flore-pleno and Tom Thumb alba, Collinsia multicolor, Limum grandiflorum coccineum, Leptosiphon densiflorus, Lupinus subcarnosus, Nemophila insignis grandiflora, Nemesia versicolor compacta alba, Nolana lanceolata, Silene pendula ruberrima, Dwarf Rocket Larkspur, and Dwarf Hyacinth-flowered Larkspur. *Half-hardy Annuals.*—Acroclinium roseum, Brachycome iberidifolia, Clintonia pulchella, Eucnide bartonioides, Martynia fragrans, Venidium calendulaceum, Mesembryanthemum tricolor and var. alba, Tagetes patula nana, Anagallis grandiflora Eugenie, French Marigolds, and Phlox Drummondi coccinea. *Vegetables.*—Supreme Peas, Broad Windsor Beans, Dwarf Mammoth Cauliflower, Negro, Dwarf Kidney Beans; Globe Artichokes, Sealey's Leviathan Celery, Early Scarlet Horn Carrots, Cucumbers, Tomatoes, Early Snowball Turnip, Vegetable Marrows, and Mushrooms. For September. *Hardy Annuals.*—Asperula azurea setosa, Cacalia coccinea, Callicpsis corousita, Campanula pentagonia alba, Chrysanthemum Dunnetti aureum flore-pleno, Convolvulus minor monstrosa, Senecio elegans flore-pleno, Branching Larkspur, Saponaria calabrica, Œnothera bistorta Veitchii, Whitlavia grandiflora, and Viscaria oculata coccinea nana. *Half-hardy Annuals.*—Abronia umbellata, Ageratum Dwarf Imperial, Datura chlorantha flore-pleno, French Marigold, Phlox Drummondi, Salpiglossis atropurpurea, Schizanthus retusus, Victoria Aster, Large-flowering Ten-week Stock, Zinnia elegans flore-pleno, Amaranthus salicifolius, and Alonsoa Warscewiczii. *Vegetables.*—Superlative or Premier Peas, Canadian Wonder, Dwarf Kidney Beans, Globe Artichokes, Autumn Giant Cauliflowers, Tomatoes, Cucumbers, Sealey's Leviathan or Ivery's Nonsuch Celery, Custard Vegetable Marrows, James's Intermediate Carrots, Windsor Beans, Champion Runners, and Danver's Onion.

GROWING MUSHROOMS (*S.*).—You can grow first-rate Mushrooms in a bed over a flue, and which is supported from 18 to 24 or more bricks from the flue. We have no faith in a bed through which a flue passes. We have never had better Mushrooms than in a stokehole shed, where the beds were helped by the heat. Wherever you can force Rhubarb in-doors you can grow Mushrooms, only the Rhubarb will stand a heat which Mushrooms will not, and therefore it is well that the flue should not touch the Mushroom bed. The flower-garden plan you propose will be very simple and effective, but we think your walks ought to be more than double the width proposed—15 inches.

GREENHOUSE (*W. A., Manchester*).—Your small house is narrow for its length, as you must have nearly 2 feet out of the 5 for a pathway, otherwise we think that you have ample light to grow almost anything, and especially the Geraniums and Fuchsias to which you refer. As you speak of Vines, we would recommend one Black Hamburgh and one Royal Muscadine. You could also grow a Cucumber or two in summer, but not early; and if you wish the Vines to prosper you should keep them cut. Before the Vines cover the space on the roof you can have good Cucumbers in your boxes of, say, 18 inches long, 12 inches wide, and 18 inches deep. Gas would heat such a house if burned in a stove, but there must be a pipe from the stove into the open air, otherwise farewell to your success. The least escape of gas will destroy the plants.

PLANTING FLOWER BEDS (*E. L.*).—Write again and tell us what you have, and what you intend planting, and we will cheerfully give our advice. If we were to plan your small garden at random, we should have such demands that it would be impossible to comply with them. State your proposed planting and we will cheerfully give an opinion and criticism. Planting a plan is a very different affair. Send the plan back when you wish criticism, as we cannot undertake to recollect it. We may say that the group would look well thus:—the centre long bed yellow, circle opposite blue, two beds next purple, two beds scarlet, the two circles at the end of purple to be yellow, those as scarlet white, and centre circle white, edged with purple. (*E. D. M.*). As a rule, we cannot undertake to plant flower gardens, and if we did, where would be the utility? as we might select plants for beds which the owner did not possess, or would be indisposed to procure, and much thought and consideration would thus be wasted, as the opinions even on proposed plans of planting require time and consideration. We will offer a few hints in your case, because, in the first place, you tell us the plants you wish to utilise; and secondly, because you send the rough plan of your garden on a separate piece of paper. No. 1, Centre with Trentham Rose Pelargonium kept dwarf, bordered with Perilla pinched-in, and edged all round with Cineraria maritima. 2, 3, Centre with Amaranthus melancholicus, edged with Golden Pyrethrum. 4, 5, Aurea floribunda Calceolaria, edged with Lobelia, that again edged with a string of Cerastium. 6, 7, Lord Palmerston, edged with Flower of Spring. 8, 9, Tom Thumb, edged with Bijou. We have no doubt that this simple arrangement would prove effective. We prefer a string of Cerastium round the Lobelia as the beds are on grass.

PEACH LEAVES BROWNED AT THE EDGE (*R. D. L.*).—We believe that the browning is caused by the air of the house being excessively moist, and the leaves thus with weakened tissues being suddenly exposed to a low temperature.

LIQUID MANURE DISTRIBUTOR.—"*W. M.*" would be glad to obtain an iron liquid manure distributor on wheels, and arranged to distribute through a perforated tube in the same manner as a street watering cart, but of a size suitable for use by one man and a lad, or by two men.

PLANT-PROTECTOR, &c. (*Mootee*).—We do not know the Nottingham one. You had better apply to the glass-case makers who advertise in our columns, telling them what you need. You cannot make one so satisfactorily as they can.

NAMES OF APPLES (*T. V.*).—The three varieties we named are fully described in Hogg's "British Pomology."

POULTRY, BEE, AND PIGEON CHRONICLE.

BLACK BANTAMS.

I FULLY agree with the remarks of Mr. W. A. Taylor, at page 262, in reference to having a separate class for Black Bantams, and I as fully believe Whites and Brown Red Game should be similarly treated. I think, however, to ensure that end that it is necessary for the fanciers of any particular breed to club together and offer a few special prizes for their neglected pets, which would ensure good entries; and committees, seeing that Blacks, Whites, or any others had at other shows sufficient entries to pay the prizes, would invariably make separate classes in their schedules. "W. A. T.," is no doubt aware of the great expense attending poultry exhibitions, and exhibitors have much to thank the various committees for, inasmuch as they alone lose if there is a deficiency of receipts, which I venture to assume is much more frequent than many imagine. I shall be very glad if any fancier will collect a small sum from the breeders of any neglected class, and offer, say, a £3 3*s.* cup as a first prize at our next Ipswich Show. Although I do not keep either of those varieties I would willingly help so laudable an effort by subscribing £1 as a second, and 10*s.* as a third prize for such classes. —W. B. JEFFRIES, *Henley Road, Ipswich.*

FOWLS FOR PROFIT, AND AS A MEANS OF SUBSISTENCE.—No. 5.

FOWLS TO PRODUCE A PROFIT OF £1 A-HEAD PER ANNUM.—I will now state the profit that may be derived from fifty hens, twenty-five kept for laying, and twenty-five for producing chickens. I have before observed, that it is an undisputed fact that the Hamburghs are the most prolific as egg-producers, and that the Black variety produces the largest eggs. These, although not so large as Spanish eggs, are of good medium size. I may without exaggeration affirm that each fowl will on an average lay 250 eggs per annum. The birds must be highly fed to obtain this number of eggs, and they must be disposed of before moulting. A hen has been known to lay 280 to 300 eggs a-year. Without further preface I will award to this breed the palm for laying, and pronounce it that which should be kept for this purpose.

If twenty-five fowls lay each 250 eggs per annum, the total number laid will be 6250, which if sold at 1*s.* per dozen—a very reasonable average price—will amount to £26 0*s.* 10*d.*

The Brahma breed must also stand first, as being the best fitted in every sense, as has been before showed, for the production of chickens. Twenty Brahma hens will each produce eighteen chickens per annum. If they incubate only twice in the year and rear nine chickens out of each hatch, the total number of chickens produced will be 360. These, if sold at 5*s.* per couple, will realise £45. It will be seen that I have only taken an average of the number of chicks that twenty Brahma hens will produce, leaving the other five to stand for any loss that may be sustained in case some should not prove so broody as others, although this is an improbable circumstance, for with attention it is more likely that they will show an incubating disposition three times during a year rather than twice. These Brahma hens, besides sitting, will each lay at least one hundred eggs per year, which will amount to 2500, realising, at 1*s.* per dozen, £10 8*s.* 4*d.*

The twenty-five Hamburgh hens after having laid for a twelvemonth must be fattened and killed. They will not bring such a large price as younger fowls, but will easily sell at 3*s.* per couple; this for twenty-five hens will be £1 17*s.* 6*d.* Those who reside near a town where poultry sales are held may realise a much larger price by sending their adult birds to such sales; indeed, where pure breeds are kept, it is more than probable that the sale of the birds, and of their eggs for sitting purposes, will form a most important item in the profit derived from the poultry yard, but this I will not take into account, setting it against occasional losses that may arise from unforeseen circumstances.

The manure made by fifty fowls per year, and also by the 360 chickens until they are sold, will be about 10½ cwt. (more will of course be made if the birds are kept in confinement), and this, at £5 per ton, will amount to £2 13*s.* 4*d.* or thereabouts. The total income realised will therefore be as follows:—

	£	*s.*	*d.*
Eggs	36	9	2
Chickens	45	0	0
Hens fattened and sold	1	17	6
Manure	2	13	4
	£86	0	0

The expenses will stand thus:—Food for fifty hens and four cocks at 1*d.* each per week, 4*s.* 4*d.* each per year, total £11 14*s.*; also food for 360 chickens at a halfpenny each per week for six weeks, £4 11*s.*; for a second term of six weeks, at 1*d.* each per week, £9 2*s.*; cost of fattening, 6*d.* each, £9 2*s.*; cost of fattening twenty-five Hamburgh pullets before moulting at 6*d.* each, 12*s.* 6*d.*; making the total expense incurred for food and fattening, £35 1*s.* 6*d.* The profit and loss account is as follows:—

	£	*s.*	*d.*
Gross profit	86	0	0
Expenses	35	1	6
Net profit on fifty fowls	£50	18	6

This is a profit of £1 per head per annum, leaving the 18*s.* 6*d.* to stand for casual losses.

It will be quite unnecessary to keep the Hamburgh cocks excepting during the hatching season, if they can be otherwise profitably disposed of. They must associate with their hens not later than January, and they must remain until a sufficient number of chickens are hatched, to take the place of those to be fattened and sold.

To no class will poultry bring such a large share of profit as to those renting a few acres of land, where no restraint is put upon their liberty, and where their food may be almost entirely grown upon the premises. To the farmer poultry ought to be considered invaluable, as they return both a quick and large profit. They must, however, occupy more of his time and attention than he usually now devotes to them, but even in this respect they have a decided advantage over the larger animals, for the same hand that presides at his table can as easily undertake the management of his poultry; indeed, a woman's presence is more acceptable to them in every way; her ways are gentle and persuasive, and her patience infinite.

In conclusion, I hope my readers, especially those who are inclined to be sceptical as to these results, will try my plan before passing their judgment as to its success. I am convinced that they will not be disappointed.—Vincent Skinner.—Finis.

UNITE TO COMBAT EVIL.

I am induced to say, I do hope exhibitors and breeders of poultry will take some steps to carry out Mr. L. Wright's suggestion of forming a "poultry society" or club, as I think it could not fail to be a source of both profit and pleasure to all interested in poultry-keeping. If Mr. L. Wright, or some other competent gentleman, will put the thing into ship-shape, he will find numbers who are only waiting to be told in what way they can best help.—R. B. Wood, *Woodland Hall.*

UNTRUTHFUL ADVERTISEMENTS.

We look upon your Journal as an authority in all poultry matters, and I beg to protest against persons advertising therein eggs purporting to be from cup-winning birds at various shows, which they enumerate, if such was not the case. I observed, recently, an advertisement of eggs from Game Bantams reading thus, "Having taken cups, first and second prizes at Birmingham, Crystal Palace, Manchester, &c., in 1870 and 1871," which naturally leads your readers to suppose the advertiser not only took the cup but also the first and second prize at each of the shows mentioned. Upon turning over the pages of our Journal (which I have carefully filed for the last eighteen years, and find most useful for reference), I find such was not the case.—A. F. H.

MR. G. HARDY'S HIGH-FLYING TUMBLERS.

It will be in the recollection of the Pigeon-loving readers of "our Journal" that just two years ago there were a great many letters written on the subject of Flying Tumblers. A sort of re-action set in for a time against the high-fancy breeds. Almonds, Kites, Agates, Shortfaced Balds and Beards were for some weeks constrained to hide their pretty little heads; while as to Pouters, which had at one time taken our pages by force, and kept them for weeks, they might, and possibly did, pout, not for pleasure, but from very envy. Well, it was all right. It is one benefit of this periodical that a great variety of subjects are brought before the notice of our readers year by year. Now one has a kind of predominance, now another. However, certainly the old varieties of Tumblers did come to the front in wondrous force. This revealed that there were yet in England a few such fanciers as there were many years ago—men who loved to see a Tumbler tumble clearly, nicely, cleverly, and who liked to keep a compact flight of such birds. This was quite the old style of fancy—Tumblers loved for the sake of their tumbling. Hundreds of years ago it was no doubt the same. Our grave, bewigged, short-breeched, clean-shaven ancestors of the last century kept and flew the old English Tumblers; stood still, gazing upwards, making their necks ache and their eyes water—never mind, enjoying the sight, and right proud of the performances of their birds. I own I was very pleased to find the same race of fanciers still in existence. There is room for all tastes in the Pigeon world. Where is there such a variety of feathered beauty? Where? Only tell me where. Some may like flying birds—I mean homing birds; others, birds that never leave home; some may trifle with Toys, others with kingly Carriers. Room for all; but pleasant it is to find that with newer tastes older ones still co-exist.

Week after week, two years ago, pages were written by different hands about Flying Tumblers. Some letters were plagiarisms on old authors, some shamefully untrue, others very imaginative, and others, again, bore evidence of the knowledge, competence, and truthfulness of their writers. Among the latter I specially marked the letters signed "H. T., *Birmingham,*" and "G. Hardy, *Fulham Road, Brompton.*" I say I specially marked these, but there were other letters also well and worthily written. Now, Birmingham is out of my latitude; once, and only once, was I there, but in London everyone must be some time or other in these centralising days. There are more Jews in London than there are in Jerusalem, there are more Irishmen in Londou than there are in Dublin, and if a man goes nowhere else, he is sure to go to London. The point with me was to find time to visit anyone in London save on actual business, but I registered a vow with myself that the very first opportunity I would make my way to "10, Fulham Road."

Recently, when in London, I was able to find the required leisure, and determined to find out Mr. Hardy, and I felt sure I should be pleasantly received by a brother fancier. Take an omnibus anywhere in its long run from the city, a Brompton 'bus, a white one, and it stops at the "Bell and Horns," Brompton, and a few doors to the left is Mr. Hardy's. Successful in finding him at home, and successful in a fine morning, soon we are in full Pigeon-chat, and then we ascend his high house. Emerging through a trap door I am on the flat roof of that high house, and a fine look-out one has. There, near, is the best modern thing in all London, the South Kensington Museum, and acres of houses and miles of streets beneath one, and not quite the smoke of the city. I mentioned that the roof is flat, and on that flat roof are built the Pigeon pens—themselves, like the roof, flat-topped and lead-covered. This plan was new to me. I had known the attic converted into Pigeon lofts, but here the pens were erected on the top of the house. I stand before the larger, which has latticed rabbit-hutch-like doors, and when opened you command a view of the whole interior, and are able to reach every bird, some twenty, perhaps. Some were Red Mottles, some Red Whole-coloured, some Baldheads, and some Rollers, generally Baldhead colour, but the white extending down the throat; not handsome birds to look at, but good on the wing for those who delight in Rollers. This, the largest pen, was divided in two by a door, and a number being put on one side that were not to fly, the rest were let out. One tap of a stick on the leaden roof, and up they go. I saw at once the advantage for Tumblers of having the pens on the roof of a high house. No buildings near were higher, no place on which to settle, and defy all efforts at driving up; but the door opened, a hit of the stick, and the birds were ascending, compact and steady, into the air. Flying Tumblers afford this special pleasure, that, circling just above their home, their owner can enjoy their flight without going from home, as with the homing birds. They flew steadily and well, quickly turning, and not scattering, and some were excellent performers.

While the birds were up I inspected the other pens; one contained shortish-faced Baldheads, and there was among Mr. Hardy's birds a rich-feathered Almond cock, shortfaced and round-headed, and a better tumbler I never beheld. He did not, indeed, take his place with the high-flyers, but in the lower region round our heads tumbled to admiration. I never remember seeing an Almond tumble before, although I have had them back, but not get quite over. Mr. Hardy's most choice and special favourites were a few pairs of Kites—Shortfaces—kept in a pen by themselves. These also were wonderful tumblers; one cock could scarcely fly up to his nest without a somersault.

I should observe that the shelves for breeding were at the back, and quite open, and that the nests used are the rough earthenware pans, which I find after all are much the best, the cleanest, freer from insects, because a scalding will destroy those gentlemen, and less causing a disagreeable smell, as wooden bowls become saturated with manure, and nests on a wooden floor cause the floor to be likewise stained and damp.

Mr. Hardy takes evidently both pains with and pleasure in his birds. Enjoying a comfortable position in the world, he told me he drives about for miles if he hears of a bird that will suit him, and so gathers together compact-made, proper-shaped Tumblers that will tumble, that being his object. Many do not come up to his standard, but he finds a few that do. It struck me that a man so situated has a nice object for his drives, and a nice hobby at home. How many persons with high and flat roofs might obtain like innocent amusement.—Wiltshire Rector.

THE DRAGOON PIGEON.

Much has been said and published of late respecting the Dragoon Pigeon, its merits and demerits; but I do not altogether agree with the decision of the gentlemen who have offered their opinion on what they consider the characteristic form and markings should be; I therefore beg to detail my knowledge of the standard.

The beak should be dark, approaching black, stout, about 1¼ inch in length, not spindled; the head of a barrel form, slightly raised over the eyes, and prominent at the base; the wattle on the beak of a tilted form round the eye at the posterior part (pinched, not circular). The eye should be bright red, prominent, and watchful, as though the bird were waiting to be off; the neck rather tapering, about three-fourths the length of a

Carrier, and widening towards the breast, which should be full; the shoulders well defined and forward, the back rather hollow with long wings and tail; the colour, a leaden blue, extending to the tail; the neck feathers, dark, lustrous, and resembling a coat of armour; the bars broad, distinct, and black. In Silvers it should be of a dark brown, approaching black.—GEORGE SOUTH.

PIGEONS GOING LIGHT.

I THINK no satisfactory reply to your inquiry on the above subject has appeared. I notice that some recommend castor oil and others cod-liver oil, but, as it appears all parties agree that worms are the cause of going light, I cannot see how the birds can be benefited by oil treatment. I should have supposed the first necessity was to get rid of the worms. Will you be so kind as to give me some further information on the subject? I should have thought some bitter drug would have been of more service than oil—Areca nut, for instance. I cannot help thinking some of the older fanciers must have a remedy but will not disclose it.—W. SEVERN.

[In reply to the above, I would observe that by no means do "all agree that worms are the cause of Pigeons going light." I believe that it is simply consumptiou, and as scrofula is in the human subject one form of it, so is wing disease in Pigeons; also, that as cod-liver oil does the consumptive patient good, so it does the bird good. Let all fanciers dissect their birds after death and see if worms exist. This would be the best plan. I think that close interbreeding produces scrofula and consumption in Pigeons, as in men and women. Now that high-fancy birds are so closely bred, and the very best in such few hands, I expect we shall hear of more going light. As yet I go in for the cod-liver oil treatment until another is found to be more efficient, and, I say, avoid close interbreeding, and attend well to the health of the birds in all ways. Thus, out-door exercise if possible; clean water—mark this—clean water in clean vessels daily (I often see the contrary); and condiments which Pigeons are known to delight in; then sound good food and variety in it; and lastly, beware of hemp seed.—WILTSHIRE RECTOR.]

JUDGING RABBITS AT NORTHAMPTON.

THE following is from a letter received from an exhibitor at the above Show.

"A gentleman called on me yesterday who was at Northampton; he was a disinterested party. I asked him his opinion about the Show (Rabbits). Those of the Committee who exhibited, and Northampton folks, seemed to monopolise the prize list. He also told me a little bit he overheard whilst looking at one of the pens, it was from one of the Committee, or rather an exhibitor, but I will not be quite certain which; he said he was the latter because he told me his name, a member of a firm. 'Look here, he (Rayson) was going to highly commend this before mine, but I wouldn't have it.' Here is a pretty state of things!—the Judge's decision set at naught by an exhibitor who had no business on the premises at that time! A copy of the above was sent to Mr. Rayson, and here is his reply. 'The man who assisted me—I was not aware until after the awards were given that he was an exhibitor, or I should decidedly have declined his services. I will give him credit for not in any way alluding to any Rabbit coming under my notice, and I could not say that there were two Rabbits in the Show I had ever seen before, my own excepted.'"

I will leave to Mr. Rayson and the above member of the Committee to explain how the prize and highly commended business was done. I decline exhibiting at a show where any but a competent person is appointed to judge.—S. G. HUDSON, *Hull*.

EVENLY MARKED CANARIES AND MULES.

MR. R. L. WALLACE'S views of how birds should be marked so as to compete in an Even-marked class are in some respects very different from what I have always understood to be the standard; for I hold, no matter what variety, whether Belgian, Norwich, Yorkshire, Cinnamon, or Mule, they must all come under the same conditions as to the position and description of their markings. I am pleased that Mr. Wallace has taken this matter up, for, with a little ventilation and friendly intercourse through your Journal, we ought to arrive at a definite and satisfactory conclusion of what the standard of an Even-marked bird should be, and if adopted by the various committees of shows, fanciers would no longer be in doubt in which class to enter their birds.

That which I take objection to in Mr. Wallace's views of an Even-marked bird is the cap mark, which I think is anything but admissible, as I have always understood that the greatest quality an Even-marked bird could have is being clear from beak to tail, both over and under the body. If a cap-marked bird is eligible, I contend so should be a bird marked on the saddle. All marks, in my opinion, should be separate and defined, and for reasons mentioned above no bird with a cap or saddle regardless of how good the eye and wing marks may be, should be allowed or considered an Even-marked bird; and in furtherence of this I would ask, What exhibitor would think of sending a Mule with cap and wing marks, or cap, eye, and wing marks, to an exhibition with any hope of gaining a prize in an Even-marked class? None, I say. If a cap is not allowed in an Even-marked Mule, why should it be in a Canary? Ought they not to be judged from the same standard? The dark feather on one side of the tail, if only to prevent fraud, ought, I think, to be allowed, as Mr. Wallace states. In the West Riding of Yorkshire and in Lancashire, where the eye, wing, and tail-marked Yorkshire birds are mostly bred, it used to be considered that a dark feather on one side of the tail was no objection, but, on the contrary, an advantage. Of course, it was there judged that six points or the nearest thereto should have the preference; last season the rule was that all birds with a dark feather on one side of the tail should be judged as if clear, the eye and wing marks to be the primary points, which meant that a six-marked bird would have to compete successfully with eye and wing marks before the tail marks were allowed.

I quite agree with Mr. Wallace that there should be comparison in the markings.

In the above I have only dealt with the markings, and leave the question of quality, colour, &c., to the judge's opinion. I should also like to hear through "our Journal," the views of other known fanciers and exhibitors on even marks, for now is the time to prepare for another campaign.—R. HAWMAN.

LIGURIAN VERSUS COMMON BEES.

CAN you, or any of your correspondents, inform me from experience whether or no the Ligurian bees are superior to the common black bee? I have been persuaded by a friend that there is no difference as far as the honey-gathering qualities; it is only the novelty, the colour, and the stripes.—AN AMATEUR.

[We should be glad if any of our correspondents who may have had experience with Ligurian bees would give "AN AMATEUR" their opinion as to the comparative merits of the two varieties. Our own experience decidedly bears out the usually accepted truth of the opinion of the superiority of the Italians over the ordinary brown bees of Europe and Great Britain.]

REVIEW.

£70 *a-year. How I Make it by my Bees, and how a Cottager or Others may soon do the same. Ninth Edition. By* J. W. PAGDEN, Alfriston, Sussex.

A CHARMING title to the ninth edition of a new bee book! We wonder how many "cottagers or others" since the publication of the first edition have followed Mr. Pagden's instructions and example, and become rich on £70 a-year! Not that we doubt that so much money can be made out of bee-keeping, and here and there such feats in parts of England might be accomplished—but only, we think, by buying off or starving out all hives of bees belonging to others within a radius of fifteen miles of such an apiary. Let the apiarian readers of this Journal read and judge for themselves. We will let Mr. Pagden expound his own plan.

"If you are not already in possession of bees I will suppose that you purchase a swarm at an outlay of ten or twelve shillings, with the intention of forming an extensive apiary . . . . Well, then, to commence. The following summer you will have one swarm independent of the old stock, and will have taken sufficient honey, at the very lowest calculation, to pay all current expenses, and also to purchase another strong swarm. Then your stock will consist of three hives; the next season they will have increased to nine, and *if* you continued this system for six years and had no losses you would have 729 hives; but we will suppose it to be only 500 (leaving the 229 to allow for all possible casualties), it is no mean return for the first investment. This calculation is not a credulous imagination, or even theoretical or visionary, as it is based on what anyone may see progressing practically yearly in my own apiaries."

Certainly if we were living within easy railway distance of Alfriston we would take our return ticket on the first holiday we could get, and run down to see the 729 hives which Mr. Pagden must by this time be managing, for unless his nine editions have been sold off in an incredibly short space of time he must have been working-up his apiarian stock for at least twice six years, and have more than made up "all the possible casualties" which could have reduced his estimated numbers. Three hundred stocks in each village round Alfriston must be a pretty sight to see! We confess to feeling a little staggered in our power of faith at such a picture as our imagination conjures up, for our own experience of the possibilities of bee-pasturage in those parts of England which we have experience of fails to

realise anything of the kind. Mr. Pagden may fancy that bees take longer flights in search of honey than is generally supposed; but let him "imagine that they go only the ascertained (?) distance of four miles from the apiary." We can only say that we have never seen our Italians more than a mile from home. Still, allowing a radius of "four miles" from their home, the villages which he peoples must be at least eight miles asunder to supply the pasturage required for the three hundred hives located in each village; so that the cottagers will be few indeed who can have a chance of "doing the same" as the favoured Mr. Pagden.

Barring, however, the manifest Alnaschar-like conjurings of day-dreams like these, there is a great deal of sound, useful, practical advice in the little sixpenny book which bears the above fanciful title, showing that the writer is no novice in the management of bees. An appendix on a fly leaf gives a very good account of his method of swarming by artificial means. We should think a shilling well spent in the purchase of this little book for other reasons besides the amusement it will afford the reader.

OUR LETTER BOX.

Mrs. J. B. Adderley.—You advertised in our last issue. Please to send us your full and true address; we have a returned letter.

Incubator (*Crux*).—Write to Mr. J. Railton, 17, East Street, Manchester.

Light Brahmas (*E. W.*).—Light Brahmas are not more inclined to be broody than any others. All sitters take to their nests as soon as they have done laying. It is their natural and their resting time. If you object to a broody hen you must keep some of the non-sitters. You have choice—Spanish, Hamburghs, Crève-Cœurs, and Houdans. We advise, as one, to keep La Flèche. From these you can expect only eggs; from the others you will have chickens. If you keep only layers you will have to buy your broody hens. It is only a figure of speech to talk of those that are always wanting to sit; no hen does so until she has laid her eggs. We still hold to our opinion, there is no more useful fowl for general purposes than the Brahma Pootra.

Poultry in a Limited Space (*New-laid Egg*).—We can give you very little hope of doing any good in such a small space; 15 by 4 feet is very small. You may attempt it with a cock and three hens—Cochins or Brahmas. They will bear confinement. Buy them young and they will lay. You must provide them with grass if they have it not, and with road grit to bask and dust in. If you have scraps from the house to help in feeding, you should keep them for a trifle over 2*d.* per week. If you have not, and you buy everything, each bird will cost you 3*d.* per week.

Ducks' Eggs not Hatching (*A. M. L.*).—We presume you set the eggs under hens, and we expect the germ was developed, and that afterwards, from cold, or neglect of the hens, the ducklings died, and caused the rotteuess of the eggs. It has been very easy for this to happen in the severe weather we have had. If there had been no life there would have been no decay. Try again, and if under hens be sure you moisten the eggs every day.

Brahma Crop-bound (*Idem*).—You will be able to say whether the cock was crop-bound. It would seem so, from your saying the food was a solid mass. In such a state a bird soon dies, as all the functions of the body cease. But when the bird has only proper food and access to gravel, whence it selects small stones, which are the millstones, as the gizzard is the mill, to grind corn and fit it for digestion, the gizzard is seldom found full of a mass of food. We have no doubt the bird died from eating improper food, that crop and gizzard were alike distended with some close doughy substance that could not be got rid of, and caused stoppage, ultimately death. Should a similar case occur, administer very warm water frequently, and manipulate the crop most gently till it is softened. As soon as it seems to be liquified, you may hold the bird up by his heels, and let the food run out of his mouth. Then repeat the water, and confine him where he can get nothing to eat. You must continue the process till he is lively and empty. After the crop is emptied, you may give a tablespoonful of castor oil.

Bantam Pullets Roupy (*W. H.*).—You must continue your treatment; give castor oil every night. Continue Baily's pills, and pills of camphor alternately. Both should be the same size. Feed on bread and ale, and she will recover.

Linnets Casting their Feathers (*W. W. Fisher*).—I should recommend that, instead of trying to prevent the feathers falling off, you endeavour to force the birds to moult, by covering them up closely and confining them in a very warm place.—W. A. B.

Diarrhœa in Bullfinch (*E. F. L.*).—One would think that what will benefit a Canary ought to benefit a Bullfinch. While I am writing this I have one eye on the paper and the other on a crested hen, one of my best, in an invalid-cage in the fender at the side of the fire. I believe in heat. The bird has been suffering from an attack of diarrhœa. Yesterday I gave her bread and milk only—condensed milk, by the way. I think she improved a little on that diet. In the evening I returned her to her cage in my bird-room, and I think a severe night with a heavy fall of snow proved almost too much for her in her rather debilitated state of health; for this morning I recognised the old symptoms—crouching in the corner at the bottom of the cage, and the discharge which accompanies the disease. To-day I have dosed her with chlorodyne, three measured drops to about a dessert-spoonful of water. When she took the first drink she shook her head in evident dislike of the mixture, which I afterwards administered freely with a quill. In a clean tin I have also a mixture of prepared chalk, as it is called by chemists, and water, which I stir up at intervals; of this she drinks freely, and I am glad to report very favourably of the improved symptoms. The discharge is less copious, and the fæces are assuming a healthier shape. On the whole I may say she is very comfortable, and is going on as well as can be expected.—W. A. Blakston.

Silver Dragoons' Bars (*H. Allsop*).—We know "Carrier's" address, but he prefers writing anonymously. He has a right to do so if he pleases. Do not reply.

Crystal Palace Poultry Show (*R. J.*).—The time is not yet fixed.

Golden Pheasant's Eggs (*A. G.*).—If properly packed they will travel as well as the eggs of poultry.

Fragments Ejected from Hive (*H S.*).—The fragments cast out of your hive are immature larvæ and bee-nymphs, which have probably perished from cold or starvation. It is of very common occurrence after severe changes of weather. Unless it should prevail to a great extent it is not usually of much detriment to the future well-being of the colony.

Parrot (*E. H.*).—Give it a tea-spoonful of castor oil, and no coffee; the sponge biscuit and fruits are unobjectionable. Unless there is internal inflammation, abstinence will restore the bird. We fear it has been too liberally and temptingly fed.

Fireside Periodicals (*Ellen G.*).—We recommend without any exception for yourself the "The Family Friend," and for your two eldest children "The Children's Friend." Although only a penny each they are full of attractive, well illustrated, instructive, and wholesome communications.

METEOROLOGICAL OBSERVATIONS,

Camden Square, London.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude 111 feet.

Date. 1872. March and April.	A.M. Barometer at 32° and Sea Level.	A.M. Hygrometer. Dry.	A.M. Hygrometer. Wet.	A.M. Direction of Wind.	A.M. Temp. of Soil at 1 ft.	In the Day. Shade Temperature. Max.	In the Day. Shade Temperature. Min.	In the Day. Radiation Temperature. In sun.	In the Day. Radiation Temperature. On grass	Rain.
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
Ta. 23	29.540	33.5	31.3	W.	40.2	46.2	26.1	91.2	23.1	—
We. 27	29.626	41.8	38.8	S.E.	39.2	59.2	27.8	64.2	24.2	0.190
Th. 28	29.402	53.1	51.8	S.	42.6	56.0	42.1	66.4	42.0	0.699
Fri. 29	29.430	55.6	53.0	S.E.	45.0	57.0	49.0	62.6	44.1	0.245
Sat. 30	29.327	53.8	51.7	N.E.	45.5	58.2	50.1	66.5	45.2	0.020
Sun. 31	29.468	54.4	49.0	N.E.	44.6	54.6	46.0	98.0	44.0	0.045
Mo. 1	29.578	53.5	50.8	N.	45.8	60.8	42.0	1 8.0	38.0	—
Ta. 2	29.393	51.0	50.7	E.	47.0	56.8	47.0	86.2	43.0	0.245
Means	29.470	49.6	47.1		43.7	56.0	41.8	79.8	37.8	1.435

REMARKS.

26th.—Fine all day with bright sun but cold wind.

27th.—Much warmer, fine morning, slight shower soon after 1 P.M., again at 7, and heavy rain after 8 P.M., wind high.

28th.—A complete wet day, fair after 9 P.M.

29th.—Fair at 9 A.M., raining at 11, and pouring between 12 and 1 P.M., wet afternoon, very bright for a few minutes between 5 and half-past, and fine night. Wind.

30th.—Wet morning, fine middle of day, rain at night, warm and very little

31st.—Fair morning, showery at noon, fine afternoon.

April 1st.—Rain in early morning, fine from 11 A.M. till 4 P.M., then showery, very dark, and a very heavy shower at 5.20 P.M., fair at 9 P.M.

2nd.—Showery morning, fair though cloudy in afternoon, and very dark between 5 and 6 P.M.

The low temperature of the first two days has been quite counterpoised by the warmth since. The means, though wonderfully in excess of the last week, are only about 1° higher than those of the preceding week.—G. J. Symons.

COVENT GARDEN MARKET.—April 3.

A fair amount of business is done, but not to the usual extent at this time of the year. First-class articles are not in very great request just now. Strawberries and Cucumbers are still a heavy trade; the weather at present being much against the sale of the latter.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples..... ½ sieve	2	0	to 4	0	Melons..... each	0	0	to 0	0
Apricots..... doz.	0	0	0	0	Mulberries..... lb.	0	0	0	0
Cherries..... lb.	0	0	0	0	Nectarines..... doz.	0	0	0	0
Chestnuts..... bushel	10	0	20	0	Oranges..... ℔100	4	0	10	0
Currants..... ½ sieve	0	0	0	0	Pears, kitchen..... doz.	2	0	6	0
Black..... do.	0	0	0	0	dessert..... doz.	4	0	12	0
Figs..... doz.	0	0	0	0	Pine Apples..... lb.	6	0	10	0
Filberts..... lb.	0	6	1	0	Quinces..... doz.	0	0	0	0
Cobs..... lb.	0	0	1	0	Raspberries..... lb.	0	0	0	0
Grapes, Hothouse... lb.	15	0	25	0	Strawberries..... ℔oz.	1	0	2	0
Gooseberries..... quart	0	0	0	0	Walnuts..... bushel	10	0	25	0
Lemons..... ℔100	7	0	10	0	ditto..... ℔100	1	0	2	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes..... doz.	4	0	to 6	0	Leeks..... bunch	0	2	to 0	0
Asparagus..... ℔100.	6	0	12	0	Lettuce..... doz.	1	0	2	0
Beans, Kidney... per 100	1	6	2	6	Mushrooms..... pottle	1	0	2	0
Broad..... bush.	0	0	0	0	Mustard & Cress..punnet	0	3	0	0
Beet, Red..... doz.	1	0	3	0	Onions..... bushel	2	0	4	0
Broccoli..... bundle	0	9	1	6	pickling..... quart	0	6	0	6
Brussels Sprouts..½ sieve	0	0	0	0	Parsley per doz. bunches	3	0	4	0
Cabbage..... doz.	1	0	1	6	Parsnips..... doz.	0	9	1	0
Capsicums..... ℔100	0	0	0	0	Peas..... quart	3	0	5	0
Carrots..... bunch	0	0	0	0	Potatoes..... bushel	2	0	3	6
Cauliflower..... doz.	2	0	5	0	Kidney..... do.	3	0	5	0
Celery..... bundle	1	6	2	0	Radishes.. doz. bunches	0	6	1	6
Coleworts.. doz. bunches	1	0	3	0	Rhubarb..... bundle	0	3	1	6
Cucumbers..... each	0	6	1	6	Savoys..... doz.	0	9	1	0
pickling..... doz.	0	0	0	0	Sea-kale..... basket	1	6	2	4
Endive..... doz.	2	0	4	0	Shallots..... lb.	0	4	0	9
Fennel..... bunch	0	0	0	0	Spinach..... bushel	3	0	4	0
Garlic..... lb.	0	3	0	0	Tomatoes..... doz.	0	0	0	0
Herbs..... bunch	0	3	0	0	Turnips..... bunch	0	3	0	0
Horseradish..... bundle	3	0	4	0	Vegetable Marrows..doz.	0	0	0	0

POULTRY MARKET.—April 3.

The supply is generally short about Easter, both from the season and from the fact that holiday-keeping is the order of the day. The trade falls off somewhat, but there is little chance of any decline in prices for the next six weeks.

	s.	d.	s.	d.		s.	d.	s.	d.
Large Fowls.....	4	6	to 5	0	Partridges.....	0	0	to 0	0
Smaller ditto.....	4	0	4	6	Hares.....	0	0	0	0
Chickens.....	3	3	3	6	Rabbits.....	1	5	1	9
Goslings.....	8	0	9	0	Wild ditto.....	0	9	0	10
Ducklings.....	6	0	6	6	Pigeons.....	0	10	0	11
Guinea Fowls.....	3	0	3	6	Pheasants.....	0	0	0	0

WEEKLY CALENDAR.

Day of Month	Day of Week	APRIL 11—17, 1872.	Average Temperature near London. Day.	Night	Mean.	Rain in 43 years. Days.	Sun Rises. m. h.	Sun Sets. m. h.	Moon Rises. m. h.	Moon Sets. m. h.	Moon's Age. Days.	Clock before Sun. m. s.	Day of Year.
11	Th	Meeting of Royal Society, 8.30 P.M.	56.0	35.2	45.6	20	16 af 5	49 af 6	55 af 6	1af 11	3	0 56	102
12	F		55.8	36.4	46.1	27	14 5	50 6	23 7	morn.	4	0 40	103
13	S		55.6	33.9	44.7	17	11 5	52 6	58 7	8 0	5	0 24	104
14	Sun	2 Sunday after Easter.	57.0	36.1	46.6	17	8 5	54 6	40 8	9 1	6	0 9	105
15	M		58.4	37.8	48.1	21	5 5	55 6	33 9	1 2	☽	after	106
16	Tu	Meeting of Zoological Society, 9 P.M.	57.4	37.1	47.3	27	3 5	57 6	34 10	39 2	8	0 20	107
17	W	Royal Horticultural Society, Fruit, Floral, and General Meeting.	58.2	35.8	47.0	15	1 5	58 6	41 11	12 3	9	0 34	108

From observations taken near London during forty-three years, the average day temperature of the week is 56.9°; and its night temperature 36.0°. The greatest heat was 77°, on the 17th, 1854; and the lowest cold 20°, on the 15th, 1862. The greatest fall of rain was 0.56 inch.

THE PRIMROSE.

HAVING, when advocating the claim of the Snowdrop to more extensive cultivation as an early-flowering plant, promised also to say a something on the Primrose as adapted for purposes for which the Snowdrop was not so well suited, I now proceed to do so. My intention in the present article is to point out the merits of one or two well-known members of this family which are not sufficiently known and appreciated.

As a plant adapted for early spring bedding—that is, for bedding in the beginning of February and onwards, I know of none equal to the single white Primrose. It is neat and compact, so that even when not in flower its appearance is pleasing, and it flowers so early that one might almost say it blooms the year before. Many we had here, as the winter was mild and open, have continued to flower in turn since the end of October, whilst in the middle of January the greatest portion of them were in the height of their beauty. So early is the best variety of the single white, that when growing in the same position as the wild one, it is earlier in bloom by several weeks. Being of a pure white it contrasts well with the damp dark-coloured ground on which it is planted, or with the herbage by which it may be surrounded. The eye of the flower, like that of all the family, is a pale yellow, and the habit is identical with that of the wild one. It bears seed freely, and reproduces itself plentifully where the situation favours it, but the seedlings so raised do not all maintain that purity of colour which the parent has, as I have now and then observed in some of them a tendency to merge into the colour of the wild one. Care ought, therefore, to be taken that the stock is kept as pure a white as possible, by destroying all the cream and parti-coloured ones, unless they possess some special merit.

In a general way the plant may be increased six times as fast as can the double one of the same colour. Although we now and then adopt the system of propagation by seedlings, the bulk of our stock is obtained by dividing the old plants. We seldom or never allow permanent edgings of them to remain more than two years in one place, unless they consist of double ones, which are of much slower growth. The single, however, is our greatest favourite, as good-sized plants of it are plentifully covered with flowers, and when planted in close line, say around a clump of Rhododendrons or other shrubs of that kind, it presents a ring of the purest white, which is conspicuous at the distance of half a mile. When more closely viewed it looks still more beautiful, since it is but seldom any of the individual florets become dirtied or damaged by slugs or other vermin, as is the case with the Christmas Rose and some other plants, and the flowers rising above the foliage make the rows look like a floral wreath of the most delicate white. In this latter respect it rivals the Camellia, while for abundance of bloom the single white equals, if not excels, the wild one.

Now, although I give the preference to the single white as regards earliness of flowering and contrast with other plants, I do not deny a place to other kinds. The next is a single lilac or mauve-coloured one. It exists in many shades of colour, and there are many different opinions as to their respective merits. If, however, the Primrose in question be described as the "Single Mauve," its colour may be sufficiently guessed at. It seeds and sows itself abundantly; and pale and light tints can be obtained in any quantity. The free-growing and free-flowering qualities of the white one belong to it in an equal degree, but it is neither so early nor so conspicuous when looked at from the distance. As a variety, however, it is well deserving of a place, because next to the single white it is the earliest of the kinds we grow, and the fact of its having so many shades of colour makes it more probable that individual tastes will be gratified.

The next best single one we have in any quantity is a rather dark red, with the usual pale yellow eye. The flower of this is, perhaps, the largest of all, but it is much later in appearing than that of the white and the last described, and its flower-stem seems weaker, so that the number of central upright flowers on each plant are few. As a variety, however, it is deserving a place, and, doubtless, others will be raised from it, though it is less inclined to reproduce itself under ordinary circumstances than the other two are; still, with care it can be had in quantity. There is great diversity among different kinds in this respect, and those who take a delight in multiplying names need not be at a loss for opportunities in a family like the Primrose, which sports so much.

We will now turn to the double ones, which seem to carry a more attractive name with them, and are thought by many to be the only ones worth cultivation. Although I do not deny them their due share of merit, I by no means assign them the highest position. The single ones in general flower weeks, and sometimes even months before the double; they are also sooner obtained in quantity, and being of more robust habit are less likely to suffer from the effects of a hot summer than the double ones. Nevertheless a portion of the latter are very useful, as they come in after the others are partly over, and look well. The double pink or mauve is the most prolific; the double white is very pretty where it does well; and the crimson is much the same, though seldom met with in a perfect state, the flowers too often having a tinge of yellow in them. The old double yellow is not so plentiful as it ought to be, and I question whether it is as common now as it was fifty years ago, for at that time I remember of rows of it as edgings to the paths of some cottage gardens growing and flowering most luxuriantly just under the tips of the branches of the Gooseberry trees. Now it figures in nurserymen's lists at a higher price than many Geraniums; and I find a very spurious kind is getting abroad, not by any means the true double Primrose of bygone days. Speaking of this, however, I may remark that a few years ago a friend of mine discovered a double one in a wood amongst the common ones that were very plentiful there. He removed it to his garden, and there it is now a very fine one.

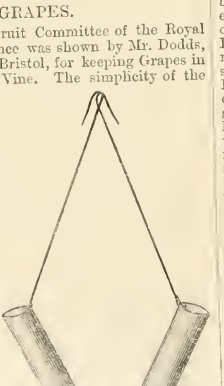
Doubtless all the double varieties are obtained by seed, only the proportion that do come double are so few that it is seldom the pains of the hybridiser are rewarded by a good one. As the whole family has of late become more fashionable, it is likely we may have something good come out ere long. The great diversity of colouring the flower assumes, and the hybrids or apparent hybrids between the Primrose and Polyanthus, present so many forms of interest that it is not unlikely but at some day some nearer approach to a good blue will be made than has yet been the case. A neighbour of mine, Mr. Divers, of Wierton, has done much to improve this family, and some of his seedlings have a greater amount of blue in their colouring than I have met with elsewhere; but he has worked most with the Polyanthus, and sometimes has introduced the Oxlip, or Hose-in-Hose varieties as they are called, into his mixture, which are well worth a place. One that I have of the common pale yellow colour is by no means an unimportant addition to the family.

Two or three years ago, having a good stock of the greenhouse species, Primula denticulata, I planted a quantity out, some of which withstood the severe winter of 1870–71, but have not done much good. I have, however, more hopes in the more deciduous one that forms such a useful addition to conservatory display, P. cortusoides amœna. This I have no doubt will be hardy and do well out-doors where it becomes plentiful enough to be used extensively; and it is possible the newer Japan species will be still more efficient.

I will only make a hasty summing-up by advising all who have the means of growing a large quantity of the popular hardy varieties of Primroses to try the single ones, and, if the soil and situation suit them, not to let them stand more than two years in one place, but after that time take them up and divide them. The double ones not growing so fast may stand longer; and if a stock has to be prepared for filling the flower-beds with in autumn, a rather shady and moist place is best. If a good batch could be put into such a position, say, in February, very fine plants may be expected the following November; and if the single white be the kind operated upon, it is very likely more than one-half of the plants will be in flower at that time. Such, at least, has been the case with those we have grown here.—J. Robson.

KEEPING GRAPES.

At the last meeting of the Fruit Committee of the Royal Horticultural Society a contrivance was shown by Mr. Dodds, gardener at Bower Ashton, near Bristol, for keeping Grapes in water after being cut from the Vine. The simplicity of the process will commend itself to everyone, and the mode of applying it will be gathered from the accompanying description. "There have been of late various methods recommended as to the best plan of keeping Grapes detached from the Vines. I have tried only two systems. The first was a nice room over our fruit room, where I could at pleasure darken the room entirely or partially so; ventilation was also perfect. The result was by no means satisfactory. My second plan was to cut the Grapes, place them in bottles and hang them up to the wires in our late vinery at one end where no plants were kept, the other part of the house being full of plants. I have had them perfect in colour, excellent in flavour, the stems quite green, and many of the bunches as perfect as they were when cut from the Vine—all this for over three months.



"This day I have forwarded you a specimen of the very simple thing I use instead of bottles; it is very inexpensive and portable. If you wish to take Grapes into another house, it is soon done. My experience convinces me that dark rooms are not proper places in which to keep Grapes for any length of time in good appearance and flavour. I think they require plenty of air and light. I do not at present remember what I paid per dozen for the tubes, but if you should like to know I will ascertain. They will last for many years.—W. Dodds."

VEGETABLE AND FRUIT GROWING.

The following interesting paper on this subject was read by Mr. Scott at the meeting of the Farmers' Club, on the 1st inst.:—

The subject we have for consideration to-night, remarked Mr. Scott, is one of more limited interest than those usually discussed by the members of this Club, but it is of growing importance to the owners and occupiers of land fit for market gardening within reach of populous centres, because they must always possess some advantage in the sale of the heavier and more perishable kinds of fruits and vegetables, and in obtaining abundant supplies of that indispensable but unwieldy commodity, solid manure. These, however, are almost the only local advantages which suburban lands now possess, for steam transport, both by land and water, may be said to have obliterated distance, and bring supplies from every recess in our own country and from others. Thus we have in January, February, and March Cauliflowers and Potatoes from Cornwall, Holland, Belgium, and France, and even from Portugal and Spain, grown in the open air, and rivalling our hothouse productions. When turnpike roads were the only means of conveyance, land around large towns had a species of monopoly in the supply of vegetables, and much ordinary land was forced into market-garden cultivation; but now it is soil and climate that has the monopoly, and some of these grounds must be dropped out of the market-garden category, and revert to ordinary farm uses and rents, otherwise the perverse cultivators will come to grief, as many did last year to my own knowledge, when wholesale prices obtained for almost everything grown, except Apples and Asparagus, were merely nominal. It thus appears indispensable to success to secure a congenial soil irrespective of locality, otherwise no cultivator of the present day can hope to obtain any but the ordinary returns for his constant anxieties, midnight labours, and the speculative risks he runs.

A few years ago a gentleman with whom I am acquainted commenced market-gardening on 700 acres of a medium soil—shallow drift on a subsoil of estuary gravel and London clay—simply because it was within carting distance of the metropolis; but as he had not the natural basis to work upon, a few years' experience has induced him to reduce the area so cultivated to one-third the original quantity. Another gentleman with whom I am acquainted, who farms an equal quantity of land only a few miles off, and possesses the right basis—namely, a deep alluvial soil, not only competes successfully with all comers in the London markets, but last year performed the astounding feat of competing successfully with the midland counties and northern growers in their own markets, as far north as Glasgow, to which he sent 60 per cent. of his early produce, and from which, notwithstanding the Irish supplies, he obtained the most profitable returns. When I add that this congeniality of soil is annually assisted by nearly 20,000 tons of purchased manure, including the peculiar ingredient "ground whalebone," this successful invasion of the north will be accounted for. Again, in Lincolnshire around Boston, Spalding, and in other districts, orchards and market gardens are springing up, not because they are near populous centres of consumption, but because they possess rich loamy soils and subsoils suitable for the production of fruit and vegetables.

If we go farther a-field, we find the otherwise worthless sand-banks on the Cheshire shore opposite Liverpool let at from £15 to £20 an acre, because they have been found suitable for the production of early Potatoes, which are thus grown: The Potato sets are kept in warm places during winter, to induce them to shoot, and in the months of March and April they are planted, generally in large beds, well manured, and covered lightly with soil by the spade, and with litter on the surface. They are thus covered and uncovered daily until safe from frosts; and so watchful are the growers—who are a distinct and peculiar class—that if during this time a dangerous frost threatens, they are said to take the blankets off their children to put them on the Potatoes. In May they begin to dig, and sell at 2s. 6d. per lb., and finish at about 3d., thus realising from £50 to £100 per acre; and from having resided several years in the county, and seen the care and labour bestowed upon the crop, I must say the cultivators deserve the reward they obtain.

Another proof of the predominating importance of natural soils as the basis of successful results over artificial condition, is the case of Mr. Wm. Thomson's great Tweedside vineyard, near Galashiels, in Selkirkshire. When in charge of Dalkeith Palace gardens, Mr. Thomson was frequently called upon to act as judge at horticultural shows; and finding one Grape-grower always coming to the front and taking the first prizes, he was in

duced to visit the locality and inspect the soils from whence they came; and finding some land of precisely similar character in the immediate neighbourhood, he purchased it, and established the above-named vineyard. It occupies nearly 4 acres, and is covered with 50,000 feet of glass, has miles of hot-water piping and other necessary appliances, and is calculated to produce tons of Grapes, hundreds of Pine Apples, and thousands of pot Vines annually. When selected this land was devoted to common farming purposes; but it has already produced Grapes which have competed successfully in London and Paris; thus showing that the soil itself contains some inherent qualities which no art can rival. *Apropos* to Grape-growing, I have seen many evidences that a water-bearing substratum within reach of the Vine roots is a source of constant fertility, providing the water belongs to a running stream, and is not stagnant. The productiveness of the great Black Hamburgh at Hampton Court is no doubt due to the Thames. On the banks of the Stour, in Kent, I have seen the same results; and perhaps Mr. Thomson's success may also, in some measure, be due to his proximity to the Tweed. The geology of gardening is thus shown to be worthy of study, especially in the formation of new grounds. In a few cases indigenous plants may be some indication as to what species to grow; but experience is the only sure guide.

From experience we learn that fruit may be grown on some soils if grafted on to an indigenous tree, quite different to what it would have grown on its own stem, and the produce of trees on some soils is quite different to what it is on others. In the cider countries quite different cider is made from Apples of the same kind grown on different parts of the same farm, showing the predominating influence of soil. Even the market-garden grounds around London, although apparently so similar, have all their specialities. Fulham and Isleworth are famed for the finest fruit—Asparagus and Rhubarb, interspersed with countless Moss Roses and flowering plants. Bermondsey and Deptford are noted for Sea-kale and Celery; Barking for Rhubarb, early Cabbages, Onions, and Potatoes; and all other districts throughout the country have some specific natural properties which no art can impart.

(To be continued.)

ROYAL BOTANIC SOCIETY'S SPRING SHOW.

April 10th.

The second spring Show of this Society, held in the same place as the previous one, without presenting anything remarkable for excellence of culture or striking for novelty, was, nevertheless, a fair display, and it had the advantage of being held on a bright sunshiny day, when people are disposed to look over little shortcomings which in weather less genial would force themselves on attention. For twelve miscellaneous plants in flower, Mr. Ward, gardener to F. G. Wilkins, Esq., Leyton, was first with very good specimens of Louise Margottin white Azalea, 4 feet high, and fully 3 feet in diameter, a fine mass of blossom; Genethyllis Hookeriana, excellent in size and bloom; Dendrobium Parishii, on a block, quite a massof flowers; good examples of Acrophyllum venosum, Odontoglossum Hallii, Pescatorei, and hystrix, and the showy yellow Azalea sinensis very well grown. Mr. G. Wheeler, gardener to Sir F. H. Goldsmid, Bart., Regent's Park, andMessrs. Lane, of Berkhampstead, took the other two prizes.

Messrs. Lane and Mr. Wheeler also exhibited groups of six forced hardy shrubs and six Deutzias, the former taking first prizes, and a similar award was made to them for Chinese Azaleas, Mr. Wheeler being second with plants not yet in such full bloom. Messrs. Lane also contributed a capital group of twelve Rhododendrons, and Mr. Ware, of Tottenham, one of hardy herbaceous plants, both receiving first prizes; and for the latter Mr. Wheeler was second. Groups of nine Cinerarias came from Mr. James, gardener to W. F. Watson, Esq., Isleworth; Mr. Marcham, gardener to E. Oates, Esq., Iver; and Messrs. Dobson, Isleworth. These were nearly the same as those shown at Kensington in the previous week, as also the Cyclamens; Mr. Goddard, gardener to H. Little, Esq., Twickenham, and Mr. Clarke of the same place, being respectively first and second. Excellent collections likewise came from the same exhibitors. The only group of Amaryllis was shown by Mr. Baxter, gardener to C. Kieser, Esq., Broxbourne, the varieties in that and the collection from the same exhibitor were those shown at Kensington.

Of miscellaneous subjects, Mr. Ware sent a collection of spring-flowering plants, a stand of Cloth of Gold Pansy, one of forcing Pinks, and a collection of seedling Alpine Auriculas; Messrs. Rollisson, Mignonette and seedling Alpine Auriculas; Messrs. Lane, Rhododendrons in fine bloom; Mr. Baxter, a collection of Roses and Azaleas; Mr. William Paul, a splendid group of Roses in pots, including Princess Beatrice, which received a floral certificate, and well it deserved it, being very large, full, and beautiful in colour; Mr. James, a stand of Pansies and a collection of Auriculas; and Mr. Needle, gardener to the Comte de Paris, York House, Twickenham, his collection of Ophrys and Orchis.

M. Louis Van Houtte, Ghent, sent a fine group of seedling Azaleas, of which the following had certificates—viz., Madame I. Lefebvre, semi-double, deep salmon red; Président de Ghellinck de Walle, large deep pink, with cinnamon brown blotches in the upper petals; Dr. D. Moore, large, light rosy crimson, with a purplish shade; Alice, large, very double, free-flowering, deep rose with crimson blotches; Comtesse de Beaufort, single, deep rose, largely blotched in the upper petals; John Gould Veitch, single, pale lilac rose bordered with white, the upper petals much spotted with crimson; and Marquis of Lorne, semi-double, orange red, with violet purple blotches. Messrs. Rollisson, of Tooting, had a certificate for Erica Neitneriana, with rose and red tubes, and a white mouth, the flowers mostly borne in fours, but sometimes seven or eight on the same peduncle, a very pleasing and effective variety.

ROYAL HORTICULTURAL SOCIETY'S BIRMINGHAM SHOW.

We have received the schedule of prizes offered at this exhibition, which is to be held from the 25th to the 29th of June, and are gratified by finding that it has evidently been prepared with care and consideration, and that many of the prizes are extremely liberal. The sum offered by the Society is £961 18*s.*, by the Local Committee for plants, &c., £891 13*s.*, and for implements, &c., £105 5*s.*, being a total of £1659 1*s.* It will thus be seen that the Local Committee have done their duty, and done it well in raising such an amount. We notice that Messrs. Carter, Wheeler & Son, of Gloucester, Messrs. Sutton & Sons, Mr. Turner, of Slough, and others in the trade offer prizes, but we do not enter into particulars, as the schedule may now be had on application to James Richards, Esq., Royal Horticultural Society, South Kensington, W.; the Local Honorary Secretary, E. W. Badger, Esq., *Midland Counties Herald* office, Birmingham; or the Local Secretary, Mr. Alexander Forrest, 10, Cherry Street, Birmingham.

WILD FLOWERS AT ASHWELL, HERTS.

It was quite refreshing to see, in a recent number of this Journal, a long list of wild flowers which this forward season had enabled "Fraulein" to gather in that charming district, Hawkhurst. A more lovely spot does not exist under the face of heaven, nor one where botanical rambles are more enjoyable.

> "Full many a path I've trod since then,
> Through pleasure's flow'ry maze,
> But ne'er could find the bliss again
> I felt in those sweet days."

In this more northern county, Herts, most flowers are at least three weeks later than they are in that more favoured locality of Hawkhurst. Besides many of those mentioned by your gifted correspondent, I have noticed here the following:—Marsh Marigold (Caltha palustris), the Pasque-flower (Anemone Pulsatilla), Christmas Rose (Helleborus niger), Lords and Ladies (Arum maculatum), Wood Strawberry (Fragaria vesca), Sloe or Blackthorn (Prunus spinosa), Primrose (Primula acaulis), the Abele tree (Populus alba), the Aspen (Populus tremula), common Box (Buxus sempervirens).

In giving precedence to the common names of these flowers, I fear I shall be anathematised by more accomplished botanists. But I think it would be well if they were more made use of in a journal intended for general readers, where not one in five hundred fully understands the precise meaning of scientific names. Indeed, much as I have been accustomed formerly to use the latter, it was not till I had rubbed my eyes and roused my memory, that I could recognise my old friend Chickweed under the elaborate, stiff, and starched Roman toga, Stellaria media, or call up the humble playmate of my childhood, the Dandelion (with whose hollow stems I have often made many a fragile chain), under that grandiloquent Grecian mantle, Leontodon Taraxacum.

In giving expression to this opinion, I am well aware that there are many who will think me guilty of the most atrocious act of vandalism in thus wishing to strip their darling science of half its regal dignity; but I take it, the beauty of every study consists in its simplicity, and is, "when unadorned, adorned the most." Many a pilot who sails in the ship of science forgets that he needed a boat to take him on board, and botanists are apt to forget that they had many a rocky path to climb before they reached the temple of their fame. How many a youthful yet intelligent disciple, "pregnant with celestial fire," and aspiring to acquire a knowledge of this fascinating study, has been confounded and dumbfoundered at the very threshold of his or her inquiries by the perplexing mask and mystic mantle with which the Greek and Latin

languages have, I had almost said, disguised its nomenclature, and have in consequence retired from the pursuit disappointed and disgusted, a pursuit to which had they been led by judicious steps in the mother tongue—than which none is more rich and expressive—they might have been the brightest ornaments.

I am well aware there are certain cases where it is impossible to conduct a botanical correspondence without the use of generic and specific names, but these are exceptional. As workers in the same vineyard let us endeavour to make science bend, not stubbornly, but gracefully and agreeably, to common understandings; and if we must use specific terms, let us compensate for the infliction by adding also those in more general use.—Mary Gold, *The Ashwell (Wild) Flower Girl.*

ADIANTUM FARLEYENSE.

This, the queen of the Maiden-hair tribe, is most deservedly admired by everyone who has any pretensions to Fern-fancying, and by many of those individuals who profess not to care for them. Whether regarded as an exhibition or simply as a decorative plant, it rivals in beauty and elegance any other known Fern; in fact, there are few amongst our cultivated ones that are equal to it. The only disadvantage to the general cultivation of this exceedingly beautiful plant is, that to grow it successfully a stove heat is necessary, and unless this can be obtained it is useless to attempt to grow it. This, as all other stove Ferns, flourishes best in a moist warm stove where the atmosphere ranges from 70° to 80°—indeed, the more heat and moisture you give it the better does it seem to flourish, and the more fully do the elegant fronds develope themselves. It is well to expose the plant to the light, but not much to the direct rays of the sun, except in the early morning or late in the evening.

Adiantum farleyense.

I have never seen Adiantum farleyense* produce spores, although there are some who assert that the now-well-known A. scutum was produced from it. This, however, I very much question, and think that A. scutum is one and the same variety as Adiantum Ghiesbreghtii, which was known some time before Adiantum farleyense was heard of. I think if we could get spores from A. farleyense that the produce would come perfectly true. I have often sown Fern spores very carefully, and have been disappointed in seeing a totally different kind produced from the one I had sown. This I think was the case with Adiantum scutum, or, as it was called, seedling farleyense. Fern spores are so minute that they are scattered no one knows where, and when they alight on a surface favourable they very quickly develope. 52232

But to return to Adiantum farleyense, the treatment of which I will describe. The compost I have always grown it in is good fibry peat and turfy yellow loam in equal proportions, with a free admixture of silver sand. This compost is not absolutely necessary, for I have seen specimens grown in turfy loam only, with a little silver sand added. I use plenty of crocks in the bottom of the pot, place a layer of sphagnum moss over the crocks to secure perfect drainage, and then pot rather firmly. The house I grow them in (I say them, as I have propagated and grown them to a satisfactory extent) is a lean-to propagating-house facing due south, and provided with a roller and blind. A hot-water tank runs all round it, and throws off plenty of the heat and moisture which are so beneficial to the growth of the plants. The heat generally ranges from 65° to 80°, rising perhaps a little higher in the day at times. I should not advise this unusually close atmosphere for the general growth of this Fern, but for its propagation I have found it absolutely necessary. Where one or two specimens only are required it is better to grow them in the stove, from 65° to 75°, with plenty of moisture, and potted in the compost I have recommended. When treated thus there is not the least fear of its thriving, as it is a free-growing Fern under favourable circumstances.—T. B.

* We are indebted to Mr. Williams, of Holloway, for the accompanying illustration of this beautiful Fern.—Eds.

MRS. PINCE'S BLACK MUSCAT GRAPE.

In The Journal of Horticulture of December 28th there are a few remarks from me respecting Mrs. Pince's Black Muscat Grape. I then stated that I considered it the finest late Black Grape in cultivation. I have no reason to alter my opinion now, as I am backed-up by such splendid Grape-growers as Mr. Pearson, of Chilwell, and Mr. Hill, of Keele Hall. I have regularly attended the horticultural shows at the Regent's Park for the last fifteen years, and I never saw better Grapes than were exhibited there by Mr. Hill; therefore I think the article by Mr. Pearson at page 273 ought to carry great weight with it.

If I am not mistaken, some one asked Mr. Meredith to give his opinion on Mrs. Pince's Grape. I am sorry he did not do so, although he mentions having cut the last bunch of Madresfield Court about the beginning of January, and that a Liverpool gentleman, a very good judge of Grapes, had pronounced it to be first-rate. I hope the readers of The Journal of Horticulture will pardon me for giving the names of some of the nobility and gentry who have tasted Mrs. Pince here. On the 17th of January the Marchioness of Westminster and Mr. Disraeli complimented me personally on growing such a splendid Grape as Mrs. Pince; on the 25th of the same month and the 1st of February Lady Strafford and Lady Dacre thought it the finest late Grape they had ever tasted. On the 4th of February the Earl of Leicester told me it was by far the best late Grape he had ever seen; a fortnight later the Earl of Cork and the Earl of Morley spoke very highly of it. On the 31st of March (Easter Sunday), I sent a dish of Mrs. Pince and a dish of Alicante to table, and my employer has just been to say that the Prime Minister and Mrs. Gladstone had pronounced Mrs. Pince to be the finest Grape they ever tasted at this time of the year. At each of Lord Chesham's parties since the 1st of January a dish of Alicante was placed at one end of the table and a dish of Mrs. Pince at the other, so that all could see them before being cut up for use. After tasting they always decided in favour of Mrs. Pince, and none found fault with the colour.

In mentioning the names of some who have tasted Mrs.

Pince's Grape here, I commenced with Mr. Disraeli on the 28th of December, and finished off with Mr. Gladstone on the 31st of March. I think, therefore, that I have proved Mrs. Pince to be a first-rate late-keeping Grape, and likewise of first-rate flavour.

I can only say to those who have not grown it, Plant it at once, treat it well, and it will give every satisfaction.—A. Donaldson, *Latimers.*

I QUITE agree with Mr. Pearson as regards the above Grape. With me it is far superior in flavour to Lady Downe's, the berries are much larger, with more pulp in them, and the bunches are larger; it sets equally well, and is not liable to scalding like the latter Vine, but it is not so good in colour. I find the fruit in the position to get the most air colour far the best, and in the coolest part of my house the Grapes were the blackest. Altogether I like it so much better that I have told my gardener to graft it on the Lady Downe's, as I shall grow it in preference to that variety. All those who tasted the two together from my Vines are of the same opinion as myself. —Harrison Weir, *Weirleigh.*

COCOS CAMPESTRIS.

THE popular name for the genus, Cocoa-nut, renders it familiar to almost everyone throughout the length and breadth of the land; but the well-known fruit is the produce of but one species, and that a very different-looking plant from the one we have now under consideration.

Cocos campestris, represented in the accompanying illustration, for which we are indebted to M. Alphand's splendid work "Les Promenades de Paris," is sometimes designated Diplothemium campestre; but whether or no it is sufficiently distinct to be removed from the genus Cocos I am unable to say, and therefore prefer making a few remarks upon its claims to popularity under its most familiar name. The members of this genus are all elegant and highly ornamental plants, and C. campestris is certainly no exception. It is, I believe, a native of the campos of Brazil, where it attains a considerable size, and produces a charming effect. As horticulturists, however, we have to use our endeavours to produce a good effect with it in a young state, and this is not a matter of great difficulty to those having a stove and a slight knowledge of its requirements; but as it is possible that some may wish to possess themselves of this plant, and yet have not the accommodation of a stove, I shall make a few remarks upon its adaptation to the decoration of apartments.

Cocos campestris.

In the first place, if Cocos campestris is to be cultivated solely for the decoration of the plant stove and for public exhibition, it should be grown in a mixture of loam, peat, and sand, in the proportion of two parts of the first to one of each of the latter two. The pots should be well drained, the plant liberally supplied with water, and kept in a moderate heat. Under these conditions it will form a peculiarly handsome plant, and be no mean object in the exhibition tent. Should it not be desirable to use it for public exhibition, it must always be remembered that a plant which looks well at an exhibition presents an equally charming effect at home.

Taking, however, the case of those amateurs who have no stove to develope the noble proportions of this species, but who are, nevertheless, enthusiastic admirers of its beauties, I would advise them to select a well-rooted plant in a medium-sized pot, and have it gradually inured to a cool temperature, or hardened-off, as it is technically called, when it may be removed to the window or the drawing-room, where it will form a charming object for years. If a plant can be obtained sufficiently large for the decoration of the hall during the winter months, or for standing in any large recess which may require such ornamentation, it will not only afford a pleasing change during the dreary dull months, but it may be plunged in the open air during the summer, and will give the garden a somewhat tropical character.

Thus it will be seen that for a comparatively small outlay a plant may be obtained which increases in beauty annually, and is an object of general admiration in whatever situation it may be seen whether on the dinner table, in the window, placed in an elegant vase in a lady's boudoir, as a specimen in the plant stove, or in the open air; and to such plants I would strongly recommend amateurs with limited glass accommodation to turn their attention. Let it be well understood that I by no means urge the neglect of flowering plants, but would rather suggest a happy medium, by which means a greater amount of beauty is obtained in a small place; and more interest is centred in even a small garden than is to be found oftentimes in one of

greater extent devoted to masses of a few kinds of flowering plants only.—Experto Crede.

RESTORING THE LEADER OF A CONIFER.

We have here a nice young specimen of the Picea Nordmanniana 19 feet high. Three years ago, in the month of April, it lost its leader. I tied up one of the side shoots of the previous year's growth, and from that time to the present the tree has grown 5 feet 1 inch, and has as fine a leader as anyone could wish to see; it is also nicely furnished with side branches. If not informed of the fact one could not observe that the tree had ever lost its leader.

Of Picea pectinata there are several thousands in the woods here. In many cases the young trees have lost the leader, but if it has not been cut below the side shoots of the same year's growth one of these shoots will rise and form a leader —sometimes being rather crooked. With a single specimen, such as that at Lutwyche Hall, tying-up will prevent that. As to grafting, I should never think of it as long as a side shoot remained. If the whole of the last season's growth has been cut off I should say, Graft; if not so cut off, it is only adding injury to what has been deeply enough injured already.—J. Smith, *Fynone, South Wales*.

[It is not unusual for a side branch when tied up to replace a leader to retain its normal character, and remain for years without producing a regular whorl of branches as the natural leader does.—Eds.]

GRAFTING.—No. 7.

In crown-grafting a stock near the surface of the ground, it is better, after the process is complete, to earth-up the graft as far as the highest buds, as by so doing the drying of the graft, which always causes harm, is avoided, and in the case of certain species, fresh roots springing from the cuts, help to quicken the growth of the plant.

There is no special necessity for choosing young succulent shoots as grafts, since those of two years old, if they be in active life and furnished with buds capable of developing themselves, are just as likely to succeed. Grafts of both these ages combined may be selected for old trees, the two-year-old wood being at the base where the cut is made, and that of only one year at the top whence the growth will ultimately be continued. The Gleditschia triacanthos, which is usually grafted with G. Bujoti, and some other kinds, should be crown-grafted in this way.

On referring to *fig.* 1 it will be seen that the graft A is of two-year-old wood, and bears two shoots of the current year

Fig. 1.

shortened to within three-fourths of an inch of their base. The cut should be made upon the older part, *a*, of the shoot, in the way shown at *a'*; and the slip inserted upon the stock B by making a simple cut, and then forcing back the bark with the handle of the grafting knife or a little wedge of boxwood. This last precaution is absolutely necessary, both on account of the size of the graft and the inelasticity of the bark of the Gleditschia.

Improved Crown-grafting.—This kind of grafting differs from the former in two very important points.

1, The stock A (*fig.* 2) is cut slantingly at the top B, and the graft is placed within the bark, so that it fits upon the acute end of the crown by means of a little notch.

2, A cut is made through the bark of the stock, one side of it, C, raised; the graft is slipped into the opening so that the flat side caused by cutting the notch in the graft rests against the sapwood, E, of the stock, and the back part, C, is covered over with the flap C.

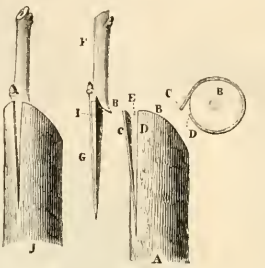


Fig. 2.

The chances of success are greatly increased if a thin strip of bark, D, is taken off the side of the notch, and the graft so fitted-in that the part thus exposed rests against that portion, D, of the bark of the stock which has not been separated from the sapwood.

In *fig.* 2, J represents the appearance which is presented when the work is all done but the waxing and tyeing. We add the plan of the stock, B, the portion of bark, C, raised from the wood, and the other, D, which remains untouched.

These slight variations, which may be infinitely increased according as reason and practice dictate, have for their object the hastening of the union between the graft and the stock.—Baltet, *L'Art de Greffer*.

LACHENALIA TRICOLOR.

Let me put in a plea for this as a dinner-table plant. I have two pots of it (6-inch), and I have not had for some time anything that has pleased me better. The pots were well filled with bulbs and kept in a greenhouse; they are now full of healthy green foliage partly drooping over the rims, and with abundance of bloom. The colours are those which are exactly suited for artificial light—bright green, red, and orange. The height, too, is in accordance with the present fashion; and from the ease with which it is grown it deserves a place not only for the decoration of the greenhouse, but also for the purpose I have indicated.—D., *Deal*.

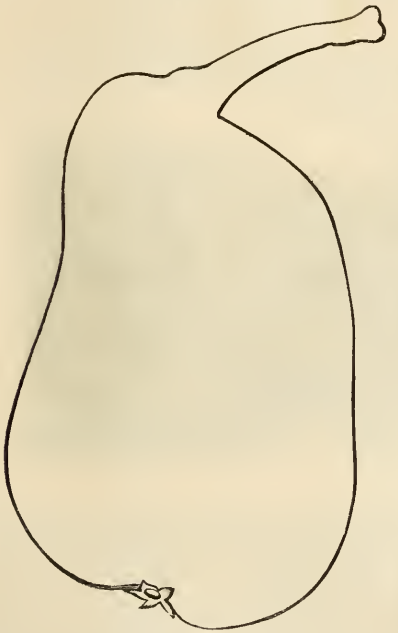
WORKMEN AT LONDON NURSERIES.

The education of gardeners, together with the wages question and other subjects having for their object the improvement of the condition of the blue-aproned community, have often been ably handled in the columns of the horticultural press, and by its powerful influence been the means of redressing many grievances and elevating the moral and social status of an intelligent and deserving body of men. But as Onward and Upward ought to be our motto, I venture to call your readers' and correspondents' attention to the many hours that workmen employed in some of the London nurseries have to labour during the summer months, and solicit their aid and support towards bringing about a better state of things. I make this appeal now, as the time is nearly at hand when in previous years an additional hour per day has been imposed, making the working day to extend from 6 A.M. to 7 P.M., with one hour and a half deducted for meals. For this so-called day's work the pay varies from 2*s.* to 2*s.* 6*d.* If the labourer is worthy of his hire—and would he be employed if he was not?—surely he ought not to be expected to toil so long for so small a pittance. The nine-hours movement in the great manufacturing seats of industry is fast progressing with mighty strides; the spirit of the age is propelling it, promoting a kinder and more genial feeling between masters and men than has hitherto existed. With this staring us in the face, is it, I submit, either just or honourable for the gardening fraternity, so far as nursery work is concerned, to be placed under so

cruel a ban as the 11½-hours system? From my own experience I most positively affirm it does not work well for either party. The men after their work is concluded have neither time nor opportunity for study or relaxation; their energies mental and physical are enervated; and, smarting under a sense of injustice they have as yet been powerless to avert, their employers' interests suffer for the want of the painstaking and diligence they would otherwise freely bestow. That this system is not a trade necessity is evident, as some firms of the highest standing have never adopted it; and in common with many others, I hope those who have done so will give the subject their most careful consideration, and arrive at the conclusion that ten hours' honest labour is a fair requital for their invested capital.—R. M. G.

BEURRÉ DE BISEAU PEAR.

This excellent winter Pear was exhibited at the last meeting of the Royal Horticultural Society. It was received from M. A. de Biseau d'Hauteville, of Binche, in Belgium, along with another, both being seedlings, and marked respectively No. 1 and No. 2. That which was marked No. 1 was of such excellence as a late winter dessert Pear, the Fruit Committee



Beurré de Biseau Pear.

awarded it a first-class certificate, and named it Beurré de Biseau, after the raiser. No. 2 was too much decayed for a judgment to be formed of it. The fruit is above the middle size, oblong, unshapely, and undulating in its outline. Skin entirely covered with a thick coat of smooth dark cinnamon brown russet. Eye open, clove-like, set in a rather deep depression. Stalk 1½ inch long, united to the fruit by a large fleshy lump, and fleshy at the base. Flesh yellowish, tender, buttery and sweet, with a rich flavour and excellent bouquet. This is a first-rate winter dessert Pear, and one of the best at so late a period of the season as April and May.

The fruit was gathered from the parent tree, which is growing in the open ground, and is about 6 feet high. This seedling is sixteen years old, and the past year is the second of its bearing, when the fruit kept perfectly till the 15th of May, and was then more juicy than those tasted in the end of February and beginning of March. The stalk adheres firmly, and is not broken by the heaviest gusts of wind. The growth is of pyramidal form, the branches being slightly incurved. It is vigorous, and bears fruit very freely even upon the wood of only one or two years of age. The foliage is thick, of pretty appearance, and each leaf is situated on a rather long petiole. The fruit was gathered from the 15th to the 25th of October, and kept on the floor of a room on the ground storey until the time of their dispatchment. Although the Pears were quite frozen underneath their covering during December, not one of them has turned rotten, whilst many of different varieties which lay near them at that time have gone decayed.

ROYAL HORTICULTURAL SOCIETY.

The following are the rules and regulations of the Snow or Dinner-table Decorations, to be held at South Kensington, May 15th and 16th.

I.—The table for twenty persons will be 16 feet long, 5 feet 9 inches bread; eight places to be laid on each side and two at each end.

II.—The table for twelve persons will be 10 feet long, 4 feet 6 inches broad; five places to be laid on each side and one at each end.

III.—The tables will be 3 feet 10 inches from the ground, so that visitors may view them at the same elevation as if they were seated in chairs.

IV.—Each dinner table will have a separate compartment in tents erected for the occasion, so that each exhibitor will have a private room to himself, and a separate side table will be provided for his accommodation.

V.—Tablecloths and dinner napkins to be found by the exhibitor; also all such requisites as sand, moss, clay, &c. The Society will supply water.

VI.—The table to be furnished with the following articles:—Plates, knives, forks, spoons, wine-glasses, salt-cellars, &c., complete.. The receptacles for the fruit and flowers may be of any material and of any form.

VII.—The following appliances are optional:—Caraffes, ice-dishes, statuary, plants and other ornaments not required for fruit and flowers.

VIII.—In class 2, economy of cost of the furniture of the table, as well as of the fruit and flowers, will be considered one of the primary tests in awarding the prizes.

IX.—The Exhibition will be judged as for a dinner by daylight, no lamps or candelabras allowed on the table.

X.—Taste in arrangement will take precedence of costliness in the objects.

XI.—In order to provide for the safety of the objects exhibited, an officer will be placed in charge of each separate compartment, and the tables railed off at a distance of 3 feet, but the Society will not be responsible for any loss or damage.

XII.—Entries must be sent in on or before the 9th May, in order that proper accommodation may be provided.

EXTON HALL.

The Seat of the Earl of Gainsborough.

Exton Park is skirted on one side by the old Great North Road, but as the Stamford "flying coaches" have long since passed away, the passenger from London must travel to Oakham either *viâ* Peterborough or *viâ* Leicester, the latter the longer, but owing to the splendid express service of the Midland Company, at certain times much the quicker way. Still Oakham, though not a hundred miles from town, is not one of the easiest places to reach; it is not on a main line, and whichever way one goes, there is much loss of time on changing trains. Exton is five miles from Oakham, and about eight from Stamford, and its gardens, park, woods, and water cover an area of something like 1700 acres. Mr. Loudon years ago computed it at 1510 acres, but since his time additions have been made by taking in one or two farms.

No residence known to us has such an unbroken history as Exton Park. In Anglo-Saxon times, being then known as Exentune, it was possessed by Waltheof, Earl of Northumberland, who, sustaining the cause of the Norman Conqueror, was rewarded by him with the hand of his (the Conqueror's) niece Judith. With their daughter Exton passed to the Brnces, and then in succession to the Greens, Culpeppers, and Harringtons. In the family last named it remained for nearly six centuries, and was then sold by them to Sir Baptist Hicks, the leviathan merchant and money-lender of the sixteenth century. The trust was to pay the debts of the two last Lords Harrington. It was then passed to the Chichesters, and a daughter of that

family brought it to Lord Bruce, "by which means the estate, which was derived from the Bruces to the Harringtons, after a long descent, passed from the Harringtons to the Bruces, Earls of Aylesbury." From them it came to the Earl of Gainsborough, who had married the heiress of Sir Baptist Hicks, and it has continued until now a residence of that noble family.

The pleasure grounds are very extensive, amounting to about seventy acres, a large portion of which is kept as dressed grounds. Passing over the kitchen garden for the present, and taking a walk by the south side, where the boundary is formed by a piece of ornamental water, we reach a gate which gives access to the main walk from the mansion. Immediately after passing through the gate, on the left is a grass walk bordered by a Sweet Briar hedge and a beautiful Laurustinus hedge 5 feet high and nearly 7 feet wide. In this part there are several very fine specimens of Arbor-Vitæ, beautifully furnished and from 20 to 30 feet high, likewise Yews, Larches, Pinus insignis 40 feet high, Thujopsis borealis, and Taxodium or Sequoia sempervirens 35 feet high. This is flourishing in little else but sand, and Mr. Smith, the gardener, thinks that it thrives better in this than in richer soil. There are also several excellent specimens of the Chinese Juniper and other Conifers. Northwards a new drive has been formed to a projected central entrance to the kitchen garden, and the ground included between the drive and the ornamental water is being gradually planted as a pinetum, affording here and there glimpses of the water, towards which the ground slopes rather rapidly from the upper walk. Some Wellingtonias transplanted in the autumn of 1869 had each year made growths of 18 inches; but in Abies Douglasii there was a great difference noticeable in the growth of the branches, those on the south-east or most exposed side of the tree being far shorter than those on the less exposed but otherwise more favourable sides. Here, again, were some remarkably fine specimens of Pinus insignis and Juni-

Exton Hall.

perus virginiana or Red Cedar, and amidst the numerous "nurses" which at present occupy the newer portion of the ground are young trees forming the nucleus of what will doubtless be an excellent collection. Lower down, towards the water, is neatly-shaven turf with Purple Beeches, Black Austrian Pines, and a variety of other trees; and beyond dense masses of trees, chiefly deciduous, which have a very picturesque effect, especially when casting their dark shadows on the water.

Towards the mansion, of which we give a view,* the pleasure grounds narrow considerably, but new roads and walks have been laid out and new plantations made, which in time will add much to the apparent extent. A magnificent old Lime tree is growing to the west of the house, and many fine specimen trees are dotted about. On the southern side is a beautifully laid-out geometrical flower garden, of which we purpose giving a representation hereafter; at the time of our visit (the beginning of March) no idea could be formed of its summer aspect when filled with bedding plants, but even then its outlines and architectural accompaniments gave it a character which most gardens do not possess.

There is one drawback to the new mansion—that it lies on rather low ground, and in this respect the old Hall, which still exists, has the advantage, as it is situated on higher ground, and commands more extensive views. The date of its erection is not known, and though internally in a woeful state of dilapidation and utilised for a variety of purposes, externally it has a time-honoured aspect; here Ivy-covered, there grey with age, it contrasts favourably with the larger, more elegant modern hall. Adjoining is an enclosure of about an acre surrounded by a Yew hedge, which is now being restored by cutting back, as it had got bare at bottom; and within this again is a Sweet Briar hedge. This would have been a fine site for a flower garden southward-facing, with terraces requiring little more than the finishing touches of the modern gardener, and probably the work of some of Mr. Smith's predecessors. It is not unlikely that at some future time advantage will be taken of this piece of ground to form a second flower garden, or at least to turn the position to account in some such way. Growing out of one of the walls of the old Hall Mr. Smith pointed out tufts of Ceterach officinarum, remarking that he had not before known Rutlandshire stated as one of its habitats.

From the old and new Halls there are many fine views across the pleasure grounds and park; one of the most striking of these we give,† merely remarking that it is taken from the house, looking across the flower garden towards the village church on the south-west. There are likewise several pretty

* From a photograph by Mr. Drake, of Uppingham.

† This is from a photograph by Mr. Robinson, St. Martin's, Stamford.

views across the water in various directions, in which occur fine trees of the Hemlock Spruce, graceful Birches, and noble Beeches—one 14 feet in circumference of stem—Cupressus sempervirens 25 feet high, Red Cedars, Cupressus Lawsoniana, Cryptomerias, a Wellingtonia 26 feet high, Sequoia sempervirens, and many more. To the north-east lies a natural valley with the sides clothed with Box, Laurels, and Ivy, and in beds beneath Pampas Grass and a variety of herbaceous plants. This is also a pretty spot, especially in summer.

Crossing the park, in which, by-the-by, from Star Point five or six churches are to be seen terminating as many vistas through avenues of Oak trees, we reach Fort Henry, a favourite pic-nicking place in summer—a place for boating parties on the extensive lake, and a place which must be thoroughly enjoyable by the shade of the great trees, the idea of coolness which the water gives, and the solitude of the spot. There is a prettily wooded island in the lake, and on the banks already the early Primroses were peeping forth. In summer all the grass is kept neatly mown, yet, very judiciously, the borders are not planted with gaudy bedding-out flowers, but are allowed in a great measure to preserve a natural appearance, which better accords with the accompanying scenery. We noticed here an Elm with a stem 26 feet in circumference at the base. A spacious band house betokens that the solitude is not unbroken by sweet sounds.

We shall next proceed to the kitchen garden, which within the walls is five acres in extent. It is one of the best kitchen gardens in England, and, this said, it need scarcely be added it is admirably managed. Its situation, however, especially near the south side by the ornamental water, must render its crops liable to suffer from spring frost, and the soil, though not perhaps absolutely stiff, evidently requires to be worked with care, without undue haste, otherwise crops would linger that would otherwise flourish. It is divided by five walks running lengthwise, with one across the centre, and they are 7½ feet wide to allow of the passage of a horse and cart. The

Exton Pleasure Grounds and Church.

south-aspect wall—we will call it such, though it does not face due south—is 15 feet high, and has a 20-feet border. As usual it is covered with Peaches and Nectarines; of the former excellent trees of Early York, Barrington, Late Admirable, Bellegarde, and Grosse Mignonne; of the latter Prince of Wales, Rivers's Orange, and Pine Apple. On the same wall, over the central gate, is a fine old Mulberry which is very fruitful, and at the end near the houses Figs. Fronting the wall, on the opposite side of the walk, is a row of young dwarf pyramid Pears. The other walls with east and west aspects are also well clothed with trees—Plums, Cherries, and Pears, but, as already remarked, there is no wall on the south side to which the garden lies open—rather too much so we think.

Nothing could be better than the appearance of the vegetable quarters, nothing could be neater, and the crops above-ground and those that would soon be underground, gave promise in the one case, as they gave evidence in the other, that the results obtained were highly satisfactory. The true London Colewort and the London Market Cabbage were excellent; so, too, was the Broccoli, which was protected by shaking a little Bracken among the plants. It may be remarked that those grown in hard ground were the earliest to head, which is quite in accordance with what we know of a similar condition inducing a tendency to flowering in other kinds of vegetation—a tendency to be taken advantage of in some cases, to be carefully avoided in others. Peas and Potatoes of different kinds had been extensively sown and planted for trial, although Mr. Smith, from past experience, was far from sanguine as to the superiority of some of the new varieties. After discarding the worst he is again putting on trial those of which he has the best hopes. Strawberries, too, he is trying. Of President, Lucas, and Sir Charles Napier he speaks highly, and Elton for late use is a great favourite. Many of his trial plants are in pots, but those on which he relies are planted in a large quarter where the ground is never disturbed by the spade, but well manured, and at the end of three years the plantation is destroyed. Of the quarters of Gooseberries, Currants, and Raspberries more need not be said than they were large and well-ordered; of the pyramid trees planted about the garden, that they were excellently managed; and that several old overgrown espalier trees would be replaced by pyramids.

The extent of glass is small relatively to that of the gardens—all the more reason that it should be made the most of, and it is made the most of. The Cucumber and Melon pits, lean-to's, 8 feet high and the same in width, contained, besides cuttings, splendid crops of Cucumbers, Telegraph being the kind principally grown, and plants from cuttings preferred to those from seed as being more prolific. The Pines are chiefly grown planted out in beds; abundance of heat, both top and

bottom, was afforded to the fruiting and succession plants. Mr. Smith is no advocate of the starvation system, and the results in the growth of the plants and the produce justify his practice. The stove, as indeed all the other houses are, is a lean-to, 30 feet long by 20 wide. In this was an excellent collection of Dracænas, Caladiums, Dalechampia Roezliana rosea, which had been in flower all the winter, Begonias, Euphorbia spinosa, Rivina humilis, Zygopetalum Mackayii, and a variety of other plants. An intermediate house contained a number of the old Phajus grandifolius, several excellent specimens of Eucharis amazonica, fine seedlings of Lomaria gibba, together with Platycerium alcicorne, Cheilanthes elegans, and a variety of other Ferns. Along with these were Begonias and flowering plants. Among the latter we noticed a number of plants of that extremely showy plant Vallota purpurea, which were kept warm and close to the glass, ultimately to be transferred to a cold frame for flowering.

We now come to the fruit houses, the first of these being the early vinery, planted with Royal Muscadine, Black Hamburgh, and Chasselas Musqué, all showing well for fruit. On the back wall are trained Habrothamnus elegans and Passiflora Buonapartei, which is every year flowered on the fresh wood, a portion of the old being cut away. Bedding plants principally occupied the front of this house. The next house was the succession vinery, 42 feet in length. Here the fruit always shanked till the Vines were lifted. This was done when they were in leaf, a fresh border made, and in the succeeding year there was an excellent crop. The Vines in the Muscat house were similarly treated, and with a like result. In both houses were Geraniums for vases, Spiræa japonica, and in the Muscat house a quantity of Chinese Primulas and useful early-flowering Pelargoniums for vases, Azaleas, Camellias, &c. The late vinery, with Peaches on the back wall, contained Primulas, Deutzias, Geraniums, Cinerarias, and other plants, and for the season presented a rather gay appearance.

In the frame ground several lights were occupied with Potatoes and other vegetables, and Melons, of which Scarlet Gem and a green-fleshed kind of Mr. Smith's own raising, are those grown. The Pine pits were full of a fine healthy stock, principally Queens and Smooth-leaved Cayenne. The Mushroom-house contained beds in excellent bearing, and in the fruit-room there was still a fair supply of fruit, considering that the crop was last year almost a failure. Dumelow's Seedling and Blenheim Pippin Apples, subsequently shown at Kensington, were in fine preservation. The tool-shed and other garden offices were convenient, but the great drawback to the place is the insufficient extent of glass. Indeed, it is a wonder how Mr. Smith contrives to grow a sufficiency of bedding-out plants to fill such a large flower garden as that in front of the Hall, and yet to have such a long succession of Grapes and Pines with such limited accommodation. As the Earl of Gainsborough takes a keen interest in gardening no doubt more glass will be erected in time.

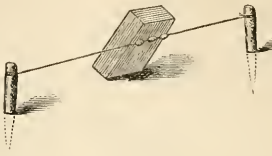
Thus much of Exton's gardens, and now of its gardener. Mr. Smith is one of the best examples of those who have been trained, or rather completed their training, at Chiswick; modest, persevering, skilful in practice, well acquainted with the theory of his profession, and cultured in the sciences bearing upon it—to him are due in a great measure the improvements which have been made during the last few years.

Female Garrya elliptica.—Your correspondent "Hereford" (page 275), has made a mistake about the female Garrya elliptica. I cannot give the dimensions of the tree, but it is a female, is large, and about twenty years old. It grows in the front of a shrubbery at Frankfort Hall, Clevedon, the seat of Conrad W. Finzel, Esq.—George Lee, *Clevedon*.

[Mr. Lee enclosed some of the flowers.—Eds.]

MOUSE TRAPS.

I have lately noticed in your pages several modes of catching mice, each having its supporters, and I wish to recommend one which, if adopted, will put all the others into disuse for out-door work. It is the most simple and effectual of traps, and surpasses all that I have tried. All that is wanted is one brick, two pieces of stick, a piece of matting, and a few Peas. The way to set the trap is this:—Push the two pieces of stick into the ground at about a foot apart, thread three or four Peas on the twisted matting, tie the matting tightly to the sticks, the Peas being in the middle, resting the brick in a slanting direction on the Peas. The mice will nibble through the Peas and matting, and down falls the brick and crushes the intruder. The ground should be made quite flat and firm where



the trap is set.—J. C. Mundell, *Beechwood Gardens, Tunbridge Wells*.

I quite agree with Mr. Record as to the efficacy of the mouse trap he recommends, and its being so easily made; you may take a wheelbarrowful of bricks, a handful of bits of wire 2 inches long, and a few Peas in your pocket, and set a score or two traps in a few minutes. I have employed them a long time. In using them between rows of Peas, a piece of slate or board must be placed beneath them for a solid bottom. They are excellent for buildings and farm premises, as one brick only is required, it being placed alongside a wall. I have caught numbers of mice in this way. In the garden I have often used a trap recommended by Mr. Taylor in No. 405, page 502; it is a very good mouse trap, but I prefer that recommended by Mr. Record, as the water in Mr. Taylor's trap gets frozen in severe weather, when it is at once useless.—H. Harris.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Prick out on a slight hotbed *Cauliflower* plants raised in heat. The gentle bottom heat will greatly assist in pushing them along without their becoming weakly and drawn, as is the case when grown under glass. Prick out *Celery* on a gentle bottom heat, protect with a frame or hand-glass till well established, and sow seed for the main crop. Put in the main crop of *Carrots* in the first fine day when the ground is in fair working order. Sow in drills rather thickly, for the quality of the seed is said to be indifferent this season, although, so far, I have no cause to verify the general statement. Attend to keeping up a succession of *Peas* by planting, every fortnight, a breadth proportionate to the demand. Earth-up and stake those above ground to protect them from the ravages of mice and slugs, which are often very destructive at this season. *Globe Artichokes* should now be dressed; remove a little soil, pull away all the plants except four or five, and fill up with a dressing of rich manure instead of the soil. *Scarlet Runner Beans* and an early crop of *Dwarf Kidney Beans* may soon be sown. The ground for the Scarlet Runners should be well manured and deeply dug; the shoots when about 5 feet high should be constantly stopped. This will prevent the necessity of using unwieldy sticks, and will secure a succession. The first Kidney Beans will be best raised in a hothouse or frame and transplanted. They must, however, be gradually hardened before transplanting. *Nasturtiums* may now be sown, as also an early crop of *Gherkins*. These may be raised as recommended for the Kidney Beans. Sow also a little early Red *Beet*, *Scorzonera*, and *Salsafy*. Blanch *Sea-kale* in the open ground by placing inverted flower-pots over the crowns, and covering these with light soil or any material which will effectually exclude light and air. Attend to providing succession crops of *Spinach*, and keep the surface soil well and regularly stirred amongst growing crops; also do not forget small salads, as *Radishes*, &c., and sow sweet *herbs* for transplanting.

FRUIT GARDEN.

Disbud Peach and Apricot trees. This should not be too severely done at once; it is better to go over trees two or three times for this purpose, removing a certain proportion each time. I fear much need not be said as yet, if at all, about thinning fruit this season, the frost having in too many instances done so ruthlessly.

FLOWER GARDEN.

Look over all recently transplanted shrubs and trees in order to ascertain whether they are securely staked, for if they are allowed to roll about with the wind the tender roots are

broken off, and the plants are consequently deprived of their only means of nourishment. With April showers and bright and occasionally warm sunshine we must be in readiness for mowing. Have the turf swept, well rolled, and made thoroughly firm without loss of time; and remember, if the first mowing is deferred till the grass becomes long, it will require much time and labour to put the turf in proper order. Walks should be edged and otherwise put in proper order. Attend carefully to the stock of bedding plants, pot-off rooted cuttings as soon as they are in a fit state, and encourage them with gentle bottom heat and careful management to make quick growth, for after this season there is no time to be lost with young stock. Calceolarias, if well established, may be planted out in a turf pit in poor sandy soil where they can be protected from frost or cold winds, but they must be prepared for this by previously exposing them fully to sun and air whenever the weather will permit. Their place under glass can be profitably occupied with recently-potted-off plants, and with ordinary care they will do better planted out than stunted in pots. Choice Carnations if at hand may soon be turned out in beds or borders; three in a group, in rich soil, produce a bold and striking effect. The Mimulus family may soon be planted in fresh patches in moist soil, not forgetting that popular flower the Musk; the latter should be removed in dense masses or patches. Campanula stricta appears to be a desirable plant, the flowers being of a light blue colour. This, together with Salvia chamædryoides, as well as the blue Anagallises, should be cultivated, particularly where beds are encompassed with gravel. Take advantage of any hardy perennial plant, the habit and duration of whose flowers are such as to render it suitable for grouping.

GREENHOUSE AND CONSERVATORY.

Many conservatories are very unfit places for Heaths, being too lofty and warm; but such varieties as Vernix coccinea, hyemalis, Lamberti rosea, Burnettii, &c., which bloom in winter when the house is generally kept cooler than at any other season, are invaluable, as they flower very profusely. These varieties should be largely cultivated for the decoration of conservatories, and for supplying cut blooms. They should be cut back severely as soon as they have done blooming, giving them a liberal shift when they start into growth, using rich strong peat, and if they are well attended to during the growing season they will overcome any injury they may sustain though occupying a somewhat unsuitable position while in bloom. With Azaleas, Camellias, Roses, &c., and a sprinkling of New Holland plants, show houses should now be a blaze of flowers. Let every plant, however, be placed in the most suitable position, and aim at a pleasing uniformity of arranging and displaying the colours to the greatest advantage, bearing in mind that no amount of floral display will compensate for bad arrangement, but will rather serve to make the latter more apparent. Pick off decayed flowers and leaves directly they make their appearance, and endeavour to replace the plants with others as soon as they begin to grow shabby. Sprinkle the surface of the beds frequently, so as to assist in keeping the atmosphere moist, and see that the under soil is kept in a uniformly moist state. Watch for insects and attack them as soon as they are perceived, which is the only way of preventing their doing mischief.

STOVE.

Proceed with the repotting of such plants as require it, and give all necessary attention to those in active vegetation, using every means to promote growth, combined with strong short-jointed wood. The only way of effecting this is by securing a vigorous root-action, and keeping the plants near the glass. Specimens that were started early in the season will require re-arrangement, so as to place them in positions suitable to their state of growth. Ixoras, Clerodendrons, and Allamandas "feeling their pots," will be greatly benefited by a careful supply of manure water, but see that it is given in a tepid state. Look sharply after mealy bug and thrips, for if these pests are allowed to establish themselves at this season, they will furnish plenty of work for leisure hours during the summer. Imported Orchids should have a mild yet constantly moist atmosphere for a few weeks until they begin to grow. No water should be applied to them until that period, and then with moderation. They will fill their pseudo-bulbs by atmospheric moisture alone, and all excitement otherwise will be at the expense of the energies of the plant. Start other Orchids into rapid growth as soon as possible, in order that they may have a long autumn to ripen them well—a most essential point with most of them.

PITS AND FRAMES.

The portions of cold pits not filled with young stock may soon be filled with some of the hardwooded tribes of the conservatory or mixed greenhouse, in order to make way for a free and healthy growth in the rising generation, and to afford choice specimens abundance of air and room.—W. Keane.

DOINGS OF THE LAST WEEK.

The weather is still trying, and not the best for advancing out-door work. A rising barometer leads us to expect sunshine, and if so, a little care must be paid to tender plants under glass, as the sudden change from very dull to very bright weather is ever trying.

KITCHEN GARDEN.

To keep away birds from young Peas, &c., we have found nothing better than a cord of fine string run over the rows, with pieces of newspaper tied to it. Some friends of ours recommend cloth in stripes, black, orange, &c., but on the whole we think that white acts as the greatest deterrent.

FRUIT GARDEN.

Whatever is under glass should have air early. We hope that beginners with orchard houses will not be alarmed about these cold nights. Peach and Apricot bloom will stand a good deal of frost provided the air be dry and close. We do not mean too close, but an atmosphere may be so far still without the semblance of a gale. We have seen Apricot blossom killed in a moist atmosphere with 4° of frost, and have seen it stand 10° uninjured when the atmosphere was dry. One of our hopes not yet realised has been to have an Apricot orchard house. We feel quite certain that an open airy house capable of being shut up in severe weather, would be very profitable, as Apricots ripened under a full sun under glass have a richness and flavour all their own. Nothing would repay better than a glass roof, and we are only surprised that such numbers of our friends have so many tiled and slate roofs in their gardens when glass would be cheaper.—R. F.

TRADE CATALOGUES RECEIVED.

Dick Radclyffe & Co., 129, High Holborn, London, W.C.—*Catalogue of Bedding and Decorative Plants, &c.*

George White, 3, Moss Street, Paisley.—*Catalogue of Florists Flowers, Greenhouse, Herbaceous, and Bedding-out Plants.*

T. S. Ware, Hale Farm Nurseries, Tottenham.—*Catalogue of Florists' Flowers.*

Alfred A. Walters, Kensington Nurseries, Bath.—*Descriptive Catalogue of Garden and Agricultural Seeds.*

TO CORRESPONDENTS.

*** We request that no one will write privately to any of the correspondents of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely to The Editors of the Journal of Horticulture, &c.*, 171, *Fleet Street, London, E.C.*

We also request that correspondents will not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, if they expect to get them answered promptly and conveniently, but write them on separate communications. Also never to send more than two or three questions at once.

N.B.—Many questions must remain unanswered until next week.

Maud.—A letter has been at the post office for you some time.

Watercress Culture (*Mrs. T.*).—Precisely the same proceedings are required in a stream as in the trenches. You may plant now. Widen the bed of the stream if the water is deeper than 3 inches.

The American General's Vines.—"The public would certainly be glad of further information respecting the wonderful crops of Grapes said to have been produced in a vinery in America. The only account I have seen is in the April number of 'The Agricultural Economist,' page 64, and is too incomplete to form any argument upon. The supposed reason for the enormous crop (2 tons), of Grapes from a vinery 84 feet by 24 feet, is a row of squares of violet glass on each side of the span roof.—A Soldier."

[We will insert any information we receive on the subject, but at present we have none.]

Dog-Rose Stem (*Y. Y. A.*).—A Dog Rose or Briar 3 feet high and 1 to 1½ inch in circumference, cut off level with the ground, will not grow unless it has dormant buds, which may grow and throw out roots, but the stem aboveground will die.

Ammoniacal Liquor to Grass (*L. F.*).—Apply it now, and again in a fortnight's time. It must be much diluted. Neither of the fowl houses needs be kept warm.

Belgian Apples (*F. J.*).—All the Apples you had from Mr. Van Houtte are dessert ones. Calville Blanche and Calville Gravenstein are the White Calville and Gravenstein of the "Fruit Manual." Summer Beurré d'Aremberg is quite distinct from Beurré d'Aremberg. This and many other varieties have come into existence since the last edition of the "Fruit Manual" was published, and will be included in the next.

Wild Flowers (*Alice*).—Your specimen is Veronica Buxbaumii, and as you found it near Croydon, that is the second locality near London where it has been detected. The other locality, Miss Plues says, is a pasture, called West-field, near Richmond." Petasites fragrans (formerly Tussilago), is admitted among our native plants. It has been found in Devon, Kent, and elsewhere. We have it portraited in our "Wild Flowers."

Various (*Centurion*).—Pear bloom destroyed by Curculio pyri; nothing to do with Pear fly. By Whitethorn, Mr. Rivers meant "White May," as you call it.

Myrtles not Flowering (*R. S. S.*).—The plants, probably, have not a light and airy position. Continue them in the greenhouse until June, then remove them to the orchard house, and with the treatment given to Peach trees they would succeed admirably, but we should continue them in pots and remove them to the greenhouse in October. They will also succeed planted out in the orchard house, though in very severe weather it would probably be necessary to give a covering of mats.

Amaranthus salicifolius Seed Germinating (*A. A. M.*).—Place it in a hotbed of 65° to 75°, and continue it there until the plants are established singly in small pots, then it will succeed in a house with a night temperature of 55° to 60°. We do not think there is any hope of its thriving if the temperature of your house fall to 51° at night in mild weather. We do not know what has damaged the buds and leaf you sent, but we think the latter is eaten by woodlice, which you may trap with a boiled Potato wrapped in hay in a flower-pot. The buds may be eaten by woodlice or some weevil. Examine the plants at night with a lantern. Dressing with tobacco water would certainly act as a preventive, by making the leaves and buds distasteful to insects, but you must not use the tobacco water very strong, or it may do injury.

Various (*Centurion*).—Dianthus Heddewigi is a biennial, but flowers the first year if sown early and grown in heat. It is well to keep the plants after the first year in frames, and plant them out in spring. D. dentatus Garnierianus is a perennial, and should be sown in gentle heat, pricked off when large enough, and planted out after the weather becomes mild. Giant Cape and large-flowering Emperor Stocks should be sown in August in pans or boxes, and transplanted into sheltered borders of good rich light soil on the approach of winter, or early in October. Cedronella cana is a perennial requiring to be sown now in pans in light soil, pricked off when large enough to handle, and planted out in June where it is to flower. We can only account for your Apples Northern Spy and Winter Peach not succeeding on a south wall by the trees being infested with red spider, arising from insufficient supplies of water at the root. The Calville Blanche producing abundance of flowers and but little fruit, we should attribute to the same cause—viz., dryness. Make holes with a crowbar down to the roots, and give a few good soakings of water now, again in May, and every month up to September. Syringe freely in dry weather, and in the evening of hot days. An east or west aspect is better for Apples than a south wall. Hollyhocks sown now will not bloom this year. Shell-flower we do not know. Nemophila insignis sown now will flower in June or July.

Select Kitchen Apples (*Idem*).—Alfriston, Blenheim Pippin, Dumelow's Seedling, Beauty of Kent, Cox's Pomona, Bedfordshire Foundling, Gooseberry, Hollandbury, Lord Suffield, Rymer, Tower of Glamis, and Winter Majeting.

Select Dessert Apples (*Idem*).—Cox's Orange Pippin, Reinette du Canada, Sykehouse Russet, Mannington Pearmain, Adams' Pearmain, Irish Peach, Pitmaston Nonpareil, King of the Pippins, Keddlestone Pippin, Fearns' Pippin, Dutch Mignonne, and Cockle Pippin.

Green Scum on Pond (*C. L. S.*).—This we attribute to the water being stagnant. The only way we know to keep the water free of it is to clean out the pond and cover the bottom with gravel, putting in a layer all over, ramming hard, then another layer, again ramming, and finishing off with 2 or 3 inches of loose gravel. This and frequent cleaning-out are the only means we know.

Preserving Aucuba Pollen (*H. W. E.*).—Your plan of keeping it in a glass pot is good and could not be improved on, but we fold it up in writing paper and keep it in a dry place. It is best applied to the flowers with a camel's-hair brush.

Ferns for Fern Case—Greenhouse Ferns for In-door Decoration—Fine-foliaged Plants (*M. G.*).—*For Case.*—Acrophorus hispidus, Adiantum assimile, Blechnum australe, Doodia aspera, Drynaria pustulata, Pteris serrulata cristata, and Nephrolepis tuberosa for the centre. *For Decoration.*—Blechnum Spicant ramosum; Lastrea dilatata eristata, L. Filix-mas cristata, L. opaca; Polystichum angulare proliferum, Scolopendrium vulgare corymbiferum, ramo-cristatum, and cristatum, Adiantum cuneatum, Asplenium dimorphum, A. bulbiferum, Cheilanthes elegans, Doodia aspera, Lastrea acuminata, Nephrodium molle corymbiferum, Platyloma rotundifolia, Pteris cretica albo-lineata, P. serrulata cristata. *Greenhouse Fine-foliaged Plants.*—Abutilon Thompsoni, Acacia dealbata, Agapanthus umbellatus variegatus, Aralia Sieboldi variegata, Aspidistra lurida variegata, Bambusa Fortunei variegata, Centaurea Clementei, Chamærops excelsa, Coprosma Baueriana variegata, Corypha australis, Dracæna australis, Eurya latifolia variegata, Ficus elastica, Lomatia ferruginea, Phormium tenax, Yucca aloifolia variegata, Y. filamentosa variegata, Y. quadricolor. *Shrubs.*—Berried Aucubas, Bambusa gracilis, Myrtle-leaved Portugal Laurel, Cupressus Lawsoniana and var. stricta, Retinospora pisifera, R. plumosa, Taxus elegantissima, T. pyramidalis, Thujopsis borealis, T. dolabrata, Thuja orientalis, T. aurea, T. stricta, T. elegantissima, and T. pendula. Of some you may raise plants from seed, but plants would be preferable. To give you the treatment for all the plants named would take up too much of our space, and for the kinds that can be raised from seed consult a seed list.

Pines Ripening—Suckers on Old Plants (*H. A.*).—Plants flowering in February may be expected to ripen fruit at the close of June or beginning of July. Suckers left on the old stools, the old plants being cut away, if top-dressed with soil to induce them to root, will fruit next year, or at the same time as if suckers were detached. We prefer taking them off and growing them like young plants.

Cheilanthes Fronds Browned—Palm Seed Germination (*W. N.*).—The fronds of Cheilanthes appear to be browned through being syringed and the sun shining on them. Cheilanthes are very impatient of water on the fronds; therefore do not syringe them, but maintain a moist atmosphere by sprinkling two or three times a-day every available surface. Palm seeds are sometimes three months or more before they germinate. They require a brisk bottom heat of 75° to 85°, and a top heat of 60° to 75°. Fumigating a greenhouse with tobacco is not injurious to Ferns, but the house should not be excessively filled with smoke. The fronds should be dry when the house is fumigated.

Trees to Plant in Warm District (*P. L.*).—Austrian Pines, and others of that tribe taken from a cold district would succeed as well, as if not better than, those from the locality where they are to be planted. Fourths quality glass is not quite good enough for a greenhouse. We prefer thirds, 21-oz.

Aspect for Pear and Plum Trees (*H. C.*).—Plums do best on an east and Pears on a west aspect. If we had the choice we should put Plums and Cherries on the east aspect, and Pears on the west. Turnip-rooted Celery is not easier to grow than the upright or stalked kinds; it requires similar treatment, but not nearly so much time in cultivation. It needs some earthing-up, likewise protection from frost. It is about as hardy as the other sorts. Asparagus roots grow partly horizontally and partly perpendicularly, and when the soil is suitable penetrate to a great depth, hence the necessity for trenching to afford a suitable open rooting medium.

Protecting Wall Trees with Netting (*E. B.*).—We have used old herring nets to protect the blossoms of trees from frost. They were put on double thickness and allowed to remain until all danger of frost was over. The thicker protecting material, which is much superior, we would remove by day, either pulling it up with rollers or by hand, and fasten it under the coping. In bad weather, such as we had from the 21st to the 28th of March, we would allow the protection to remain by day as well.

Aphides on Fruit Trees (*J. F.*).—You will find the aphides most numerous on the points of the young shoots. Cut the affected parts off, and if your collection is not very extensive dust all the under sides of the remaining leaves with dry Scotch snuff or tobacco powder, choosing a dry day to do it in. In four or six hours after, give the trees a thorough washing with a powerful garden engine, using rain water in which 2 ozs. of soft soap to the gallon have been dissolved. Six hours afterwards give them a similar washing with clear rain water.

Vines and Peach Trees in the Same House (*Vicar*).—Your arrangement will do very well, and you may grow Peaches and Vines in your narrow house either together or separately. If you grow Peaches under the shade of the Vines, the latter should be planted at least 5 feet apart; grow a single rod from each Vine on the short-spur system, tying and pinching-in the side shoots closely. This will give the Peaches on the back wall a chance to ripen. We do not know whether Early Beatrice and Early Rivers are good market Peaches. We know that Early York is—that we can highly recommend; Early Grosse Mignonne is also a fine early Peach. For succession, Royal George, Grosse Mignonne, and Bellegarde. The second named may be a week later than the first, and Royal George a week later, followed by the others in close succession. Desse Tardive is a very fine Peach, later by ten days or a fortnight than Bellegarde. All are free setters. You may also introduce pot trees to be placed out of doors in summer, when the fruit is set and all danger of frost is over. Had we the charge of your house we would have the Vines and Peaches in separate compartments. As to ventilation, we would have glazed lights at the apex of the roof. They may be 6 feet long by 1 foot 6 inches wide; fix them to the wall-plate at the back by hinges, opened by a rod fixed to each, notched or drilled with holes so that the lights may open to any suitable distance. This is all the ventilation necessary. If you decide on having separate compartments, in the Peach-house division grow all the trees in pots except those planted on the back wall. The following is a good list of pot trees:—*Peaches*—Early Beatrice, Early York, Early Grosse Mignonne, Royal George, Alexandra, Bellegarde, Grosse Mignonne, Walburton Admirable, Desse Tardive, and Lady Palmerston. *Nectarines*—Hunt's Tawny, Rivers's Orange, Violette Hâtive, Balgowan, Downton Pine Apple, and Victoria.

Treatment of Young Vines (*A Subscriber*).—If your Vines are to be permanent cut off all the branches, train up two young rods from each Vine, and select the best for fruiting next season, and as the permanent rod; 2 feet 9 inches is a good distance to have the rods from each other.

Thinning and Pinching the Growing Shoots of Vines (*Amateur*).—Let us suppose your Vine rods are 2 feet 9 inches apart, and trained on the short-spur system. Begin at the base of the rafter, and select two strong shoots as nearly opposite to each other as you can; select two more as nearly as possible 18 inches further up the cane; proceed in this way until the top of the cane is reached, then rub off all intermediate shoots. You will thus have a cane with nearly opposite side shoots, at an average distance of 18 inches from each other. These shoots must be carefully trained to the wire, and as soon as the shoot has formed two leaves past the bunch, pinch the points out at the second leaf; all after-lateral shoots should be pinched at the first leaf. It is highly injurious to the Vines "to cut and slash away at the foliage." No shoots will be formed if you pinch out the growing points with your fingers every fifth day. From the time Vines are fairly started into growth until the fruit is thinned, they require unremitting attention.

Fuchsia venusta.—"*Ancient*" is desirous to know where she can obtain this plant. She has applied to two of the principal London nurserymen in vain.

Vine Shoots Stopping (*A Subscriber*).—Stop at the joint beyond the bunch, and the resulting laterals at the first leaf. Rub off all after-growths below the bunch, and those above keep stopped at every joint or leaf. Do not stop the main shoot or rod until it has grown a foot beyond the point to which you intend to prune next year, or early this winter, then take out its point. When it breaks again, one of the laterals may be trained-up until it has reached to within a foot of the top of the house, it may then be stopped. All laterals on the rod should be stopped at the first leaf, and at every succeeding leaf afterwards.

Red Beet Planting (*Goddess*).—They should be planted without delay, to be of any use with spring flowers. Those you see in the parks are not autumn-sown, but have been left over the winter. If you wish to have them in spring it is well to sow in June or July, and transplant them in autumn or early spring. They are better than earlier-sown plants, and do not run so quickly in the following summer.

Repotting Camellias and Azaleas (*G. Archer*).—There is no time so good for potting Camellias as when they are making fresh growth, as it cannot well be done without injury to the roots, which is likely to cause a check. Either it should be done when the growth is beginning, or when it is com-

plete. The same remarks apply to Azaleas, but they are best potted immediately after flowering.

GUANO WATER FOR PELARGONIUMS (*Amateur*).—To every gallon of water add 1 oz. of guano, and strain before using it. Twice a-week will be quite often enough to use it.

USE OF BACK WALL OF VINERIES—CROPPING VINES—LAPAGERIA ROSEA (*Beginner*).—Against the back wall you may grow Tomatoes, or Figs, but they will need to be in pots. You may also have Camellias or Orange trees, but they should be planted out, and we fear they would do little good planted in a border under the stage, where they would catch the drip from the pots above. As your Vines are now four years old, they may, if in good health, be allowed to carry 12 lbs. of Grapes each, in twelve bunches of 1 lb. each, or a less number of bunches according to the increase of size. The fact of the Lapageria rosea casting its leaves and having a dark sediment on the foliage is due to the presence of some insect, probably brown scale, which may be destroyed by syringing with a solution of soft soap, 3 ozs. to the gallon of water, heated to 120°, and a tablespoonful of spirits of turpentine added to every gallon. This solution should be kept from the roots of the plants.

GLAZING WITHOUT LAPS (*O. P.*).—There is no danger of the panes breaking from expansion, and we consider that you have nothing to fear on that score if the glass be cut properly. Glazing without laps has its advocates, and yet we prefer the old-fashioned method of glazing with laps, but not more than a quarter of an inch nor less than an eighth of an inch. For thicker glass than 21-oz., we should glaze them without laps, placing under each joint a sort of wooden half-cross sash-bar, and bedding with white lead.

PLANTS FOR INTERMEDIATE HOUSE (*W. F. H.*).—Your warm greenhouse will be suitable for Begonias of the flowering kinds. Of these we grow numbers of Begonia Jacquiniæflora, Gardenia florida, G. radicans major, Imantophyllum miniatum, Lasiandra macrantha floribunda, Monochætum ensifervum, Pentas carnea, Poinsettia pulcherrima, Rogiera gratissima, and Torenia asiatica, all flowering plants. A few fine-foliaged plants are Dracæna rubra, D. utilis, D. australis, D. terminalis, D. stricta, Cyperus alternifolius variegatus, Pavetta borbonica, Pandanus utilis, Isolepis gracilis, Ficus elastica, Cycas revoluta, Fraucisceа confertiflora variegata. Climbers, Lapageria rosea, Hoya carnesa, Jasminum gracile variegata, Passiflora kermesina, Mandevilla suaveolens, and Bignonia Tweediana.

CAMELLIA LEAVES SPOTTED (*H. C. N.*).—The leaf has the appearance of having been kept in too close and moist an atmosphere, and wet when the sun fell powerfully on it. The plants require shade from bright sun when making their growth, and until it is complete, and at no time is a greater artificial heat required than 50°. Camellias are too often roasted when making their growth, and starved afterwards until the buds drop. We never remove ours from the greenhouse, and many there have now fresh shoots upwards of 3 inches long, and some even a foot in length. Shade, and the leaves will not spot.

DESTROYING WORMS AND MOSS ON LAWNS (*S. M. Woodroofe*).—The following is the article you refer to:—"My lawn was much infested with worms, which rendered it necessary to sweep it almost daily to look at all well; there was also a great quantity of moss on it. To destroy the worms I had it well watered with a solution of corrosive sublimate, about a teaspoonful powdered to eighteen gallons of water, and I find that, as well as destroying the worms, which were swept up in gallons, all the moss is also destroyed and the grass uninjured.—PHILIP CROWLEY, *Waddon House, Croydon.*"

DAPHNE INDICA HEADING BACK (*S. B.*).—Cut back the plant in the way you propose to do. Keep it dry until the shoots begin to break freely, and then water it according to the increase of its growth. Make cuttings of the young shoots, and place them in a gentle heat.

SEA-KALE STALKS SEEDY (*E., Yorkshire*).—We cannot assist you, as our treatment is exactly the same as yours, and we also desire finer plants. Better raise plants from seed, and begin to force when they are two years old. Ours are ready after a fortnight or three weeks of forcing, and are excellent when cut from 6 to 8 inches long. Your treatment is sound.

MELON CULTURE—BALSAM TREATMENT (*Connoz*).—The numbers you mention are out of print. Our "Kitchen Garden Manual" contains Melon culture. It may be had post free from our office for 5*d*. In order to obtain Balsams fit for exhibition at the end of August, the seed should be sown in the first week of June. Sow it in pans or boxes, which should be placed in a gentle hothed with a bottom heat of from 70° to 75°, and so as to be about 6 inches from the glass. When the plants appear, gradually reduce the temperature to 60° by admitting air, and when they are large enough prick them off into pots, rather deeply, at a distance of 2 inches apart. After this return them to the hothed, and keep them there just moist and shaded from the bright sun. When they show their rough leaves pot them off singly into 4-inch pots, return them to the hothed, and there allow them room to grow without quite touching the glass. They should be shifted into pots 2 inches larger each time the roots begin to form around the sides, should be kept in a light airy house, be kept near the glass, and have a temperature of 55° to 60° at night, and 65° to 75° by day. Sprinkle them overhead morning and evening, and sprinkle the floors, &c., with water twice daily, so as to maintain a moist though well-aired atmosphere. The buds forming on the middle or main stem should be picked off until those on the side shoots are appearing. The great point is to get the buds of an even size on the main stem and side shoots, so as to ensure their blooming together. The last shift should be given a month before they are wanted in flower, and buds should be taken off in such numbers that those intended to produce flowers may be as large as peas a few days over a fortnight before they are wanted to flower.

APPLYING LIQUID MANURE (*A Constant Reader*).—We suppose the tanks do not receive any rain water, and you will therefore need to dilute the liquid with six times its volume of rain water; you may apply this to Roses twice a-week during their growing season, and to all the subjects you name, especially fruit trees and kitchen-garden crops. For the Holly and evergreens it should be diluted with ten times its own bulk of water. It should be applied during the season of growth, and afterwards discontinued; once a-week will be sufficient. In giving it to Roses and kitchen-garden crops do not pour it on the stems, but a little distance off, between the rows of vegetables, and along the sides of rows of Peas.

CYCLAMEN FAILING (*A Subscriber*).—The cause of the leaves and buds going off is probably the sudden change from the forcing house to the conservatory, which has given the plants too great a check, and probably the watering has been too liberal, rendering the soil very wet and cold, consequently the leaves and stems have damped at the collar.

ROSE BUDS FALLING (*Puzzled*).—It is a result of the too early development of the buds. The flower-stalk being weak, the buds fall when the plants receive a check in a period of dull weather. A similar result is attendant on insufficient supplies of water. The cause of the green aborative buds is an excess of sap, very prevalent in a dull cold period. We should cut in the plant to five eyes or leaves, and we have no doubt the flowers will come all right next time.

SOWING VEGETABLE SEEDS (*T. V.*).—Broccoli and Cabbage are best sown broadcast, but Onions, Carrots, and all vegetables that are to remain where sown are best sown in drills. It is never good practice "to cover the seed deep'y and rake some of the soil away a short time before it appears above ground," for when seed is deeply covered either it will vegetate slowly or not at all. If it germinate it is likely the removal of the soil would destroy many of the plants if the soil should be left on until after they had pushed to any considerable extent.

EVERGREEN TREES FOR PLANTING ON GRASS (*Amateur*).—If you are in a moderately smoky district it will be well to omit all the Conifers and have shrubs for one of the fronts of the villa, as you have dotted them—Hodginsi Holly on the sides of the bay window; the two opposite those next the road, Silver-edged Holly; the one opposite the centre of the bay window Gold-leaved Holly; and its corresponding one next the road Ilex altaclerensis or I. maderiensis. If you have nothing to apprehend from smoke the following Conifers are suitable—Cupressus Lawsoniana stricta, C. Lawsoniana nana, Retinospora pisifera, Taxus adpressa and var. stricta, T. baccata and var. pyramidalis, T. fastigiata, Thujopsis borealis, Thuja plicata, T. orientalis, and its varieties compacta, aurea, elegantissima, and stricta. The Rhododendrons you name are first-class kinds, hardy, late-flowering plants, and would succeed well in Lancashire.

HEAT IN CUCUMBER HOUSE (*M. H. E. L.*).—You appear to have enough bottom heat; at least two 4-inch pipes ought to be enough for that. For top heat you need four rows of 4-inch pipes; these would enable you to maintain a temperature of 65° to 70° at night. You would gain some heat by taking the flue through the house, but it would be of little use beneath the bed, as it is top heat you require. We should prefer hot-water pipes. The manure water you describe as very strong should be diluted with six gallons of rain water to one of the liquid.

VARIOUS (*Somerset*).—You have no chance of having the Gentiana acaulis sown now in bloom this year; be thankful if it bloom next season. This is rather a capricious plant to manage from seed. The Sedum enclosed will be green in winter and yield whitish flowers. Sedum roseum would yield abundance of rose-coloured blooms. The Gentian would not bloom so long as the Sedum, otherwise the colour is fine. If resolved on having it, we would advise you to plant slips. Verbena venosa trails little, but grows upright and is a beautiful flower, but it will not do well with Petunias; better keep them in separate beds. Phlox Drummondi shot-silk bed is very beautiful; it is formed by planting the old scarlet variegated Geranium and the Verbena venosa mixed. It is charming when well done. (*A Constant Reader*).—We think the Cliveden Blue Pansy would suit your purpose. The other plants we think must be Alternantheras or Iresines. The beds in Hyde Park were too numerous for us to answer a query so comprehensive. Ageratum Imperial Blue or Tom Thumb would, we think, answer the contemplated purpose.

FLOWER-BEDS (*F., Cork*).—As we do not know the size of your beds, we do not know whether it would be advisable to edge them or not. The following hints, therefore, we give at random. 1, Purity, edged with Iresine; 2, Amy Hogg; 5, Rebecca; 3, Bayard; 4, Orange Nosegay; 6, 7, 8, 9, Calceolarias, bordered with dwarf Ageratums; 10, 11, Fine-foliaged Geraniums, as Crystal Palace Gem, or Mrs. Pollock, bordered with Flower of Spring.

FLOWER-GARDEN PLAN (*A. N.*).—Your proposed arrangement will not do for heights. Transpose your centre bed thus—1, Coleus Verschaffelti; 2, Pyrethrum; 3, Lobelia. Then 4, 5, use Lord Derby Geranium edged with Flower of the Day; and 6, 7, another scarlet edged with Mrs. Pollock and Golden Chain. 8 and 9 would do, but the Pyrethrum would need to be strong to come in with Humea elegans. We would prefer Calceolarias, as suiting better for height. 10, 11, 12, 13 will do. Then 14 and 16 we would pair with Calceolarias and Heliotropes; and 15, 17, and 18 we would balance by centering with Stella and edging with Christine. (*Amateur*).—We think your arrangement will look very well, but we would use the Iresine for the centre and Alternantheras for the outsides. We think, too, that beautiful as the Alternantheras are, you will have rather too much of them. As your beds are on grass, a line of Cerastium would be more telling than so much Lobelia—say Cerastium next the grass, and Lobelia behind it. Study sizes too. Excellent Pelargonium, if like ours, is too tall to be bordered with Lobelia compacta.

AUBRIETIA DELTOIDEA (*A. A.*).—This can be propagated by cuttings in a shady border now, or under a hand-light. The whole arrangement you name would look very pretty for a low bed. To cover the bed soon, the Alternantheras, &c., should be planted about 4 inches apart.

SLUGS DESTROYING PEAS (*J. A.*).—We think if you were to coat or steep the Peas for a short time in a mixture of lime and soot brought to the consistency of thin paint with urine, that the slugs would not interfere with them. We should, however, before sowing give a few dressings with quicklime, and in moist weather point it in with a fork. The dressings need not be more than sufficient to make the ground white.

ASPHALTE WALKS MAKING (*S. D.*).—It is best done in dry weather. Have a good bottom of rubble, and then cover with 3 inches of asphalt, formed by pouring boiling coal tar over cinders, bringing the whole to the consistency of mortar, and when this is spread on the walks and stiffens a little, sprinkle with gravel—spar is best—and when it will bear the roller, roll it firmly.

CALICO FOR CUCUMBER FRAME COVERING (*Ten years old*).—Use the waterproofing compound detailed in page 261 of the present volume.

NAMES OF PLANTS (*T. S.*).—Acacia angustifolia and Chorozema cordatum. (*W. W.*).—Potentilla argentea, Silvery Cinquefoil. (*J. King*).—In all probability Asplenium Ruta-muraria, Wall Spleenwort. (*A Young Subscriber*).—1, Adiantum cuneatum; 2, Enonymus japonicus fol. aureis variegatis; 3, Aucuba japonica; 4, Orchis mascula; 5, Phalaris arundinacea fol. var.; 7, Nothochlæna Eckloniana; 8, Berberis Darwinii. (*W. B.*).—1, Scolopendrium endiviæfolium; 2, Asplenium flaccidum; 3, Polystichum aculeatum, depauperated; 4, Asplenium marinum; 5, Asplenium capense (A. coriaceum); 6, Clematis cirrhosa. (*Inquirer*).—Saxifraga crassifolia. (*B. G., Subscriber*).—Centradenia rosea. (*G. B. H. C.*).—Myrtus nummularia; Leptospermum myrtifolium; Alsi nia neriifolia. (*Hildenborough, Kent*).—Anemone canadensis. (*Green Fields*).—Begonia xanthina; Narcissus incomparabilis flore-pleno.

(*R. S. S.*).—1, Leptospermum scoparium; 2, L. lanigerum. (*J. D.*).—1, Scolopendrium vulgare var. ramosum; 2, S. undulatum; 3, Aspidium aculeatum; 4, Cystopteris fragilis; 5, The Silver Fern, Gymnogramma tartarea.

POULTRY, BEE, AND PIGEON CHRONICLE.

JUDGING POULTRY.

I HEARTILY agree with "BRAHMA'S" proposal that our best qualified judges should consult together and furnish breeders with a standard of excellence for each kind of fowl. At present the standards set up by different judges vary so much that a bird considered first-class by one is often almost condemned by another. I feel certain that should our recognised judges condescend to furnish the desired information, all true fanciers will willingly pay a fair price for it, so as to remunerate them for their trouble.

I hope that Mr. Wright's proposal to form a national poultry society will not be allowed to fall through, as all amateurs must feel that it is much needed. If it is established we shall then have a head to look up to, the same as Pigeon fanciers have in that valuable institution the Birmingham Columbarian Society. —C. L. SHARMAN.

BROWN RED GAME BANTAMS.

I CANNOT pass by Mr. Jeffries' letter in your Journal of last week, with respect to more classes for the various breeds of Bantams, without making a few remarks. I am not a breeder of Blacks, so I will say nothing about them except this, that they seem to have increased very rapidly the last two or three years, and certainly deserve a separate class. My motive in writing this is to draw attention to the Brown Red Game variety, which is now becoming very popular; my opinion is, that they deserve a class quite as much as the Blacks; and how very seldom we see them by themselves except at one or two of the leading shows, at which almost every variety has a separate class Will not fanciers of this variety do something for their favourites? Surely Mr. Jeffries' offer ought not to be put on one side. I feel sure if some of our well-known breeders would take the matter in hand, something might be done to establish a class for this neglected variety at most, if not all, of our leading shows.—J. R. Y.

SILVER DRAGOONS' BARS.

IN answer to Mr. Allsop as to the colour of Silver Dragoons' bars, as I stated before, they should be black. Mr. Allsop strongly goes in for brown bars, on the principle that the colour most easily obtained must be correct. He also says that, to produce a bird with a light body nearly white, it is next to an impossibility to obtain the black bar. This is simply absurd to all who know anything at all about the breeding of Silvers; the Dragoons with black bars exhibited at the Crystal Palace and Birmingham were much lighter and silver-like than those exhibited with brown bars, and the contrast, being greater, has a most pleasing effect. The reason of his want of success in breeding black-barred Silvers is his want of knowledge how to match them. At the same time I do not wish to keep it all to myself, so shall be glad to tell him how to proceed. In confirmation of my view, Mr. Percivall, one of our oldest and most successful breeders of the Dragoon, has long since expressed his opinion that Silver Dragoons should undoubtedly have black bars, and that there is no difficulty in breeding them. It is most easily done by matching a sound-coloured Blue cock, blue-rumped (one with the bar well defined, and good in colour), to a Silver hen.—FRANK GRAHAM, *Birkenhead*.

HEMP SEED A PIGEON POISON.

IN your article on Pigeons Going Light, "WILTSHIRE RECTOR" concludes with, "Beware of hemp seed." I can say with fervour, Amen. Experienced old birds, and especially those which have once been through the fire, may eat it occasionally with impunity; but woe to the young bird that makes a full meal upon it, eating it indiscriminately. My experience proves it to either kill or cure—of such recklessness. I have kept Pigeons for nearly twenty years, and, oh! the multitudes of young birds I have lost through giving them a first full meal of nothing but hemp —many never look up afterwards. Nearly all samples contain small pale green seeds, as if unripe, which are sure to kill.—T. JONES, *York*.

RABBITS AT NORTHAMPTON SHOW.

I NOTICE some remarks relative to the judging of the Rabbits at Northampton, the meaning of which, from their very incoherent expression, it is difficult to divine. In their conclusion Mr. Hudson states "he declines exhibiting at any show where any but a competent person is appointed judge." This seems to cast a stigma on Mr. Rayson, who acted in that capacity there, and who is well known to be one of the best general judges of Rabbits we have, and certainly no one in that fancy has done more to elevate its position than he has. I regret that anyone should cause to be put in print mere hearsay, which in all probability, if investigated, would amount to nothing. I was not at the Northampton Show, neither did I exhibit Rabbits there, but this much I may say, that personally I have known Mr. Rayson for years, and have no hesitation in stating he is not the man to be biassed in giving an award.—W. MASSEY, *Spalding*.

EVENLY-MARKED CANARIES AND MULES.

REFERRING to Mr. Hawman's comments in your publication of the 4th inst. upon my former article on the above subject, I beg to observe that bird-fanciers experience considerable difficulty in knowing what to do with a bird evenly marked on each wing, with an oval cap. It seems to be a species of chameleon in the fancy as regards its general classification. As one show it is considered an Evenly-marked bird, whilst at another an Unevenly-marked bird, and the fanciers who possess specimens of this variety are often in a complete dilemma how to act. How a bird with an elliptic cap and perfectly even wings can be regarded as an Unevenly-marked bird is something, I must confess, that passes my comprehension of uniformity and regularity. I look upon it as one of those innovations of an early and inexperienced "fancy" that requires to be exploded. Mr. Hawman tells us that some of the Yorkshire and Lancashire fanciers formerly regarded a four-marked bird with a dark feather on one side of its tail, as a bird more worthy of esteem than a perfect specimen of that class, their idea being that a six-marked bird was the standard of perfection. I think the laws relating to capped birds have emanated from the same school, and as they have abolished the idea respecting the tail marks, I think they would do equally well to apply the same principle to the capped birds. For my part I regard all dark tail feathers as superfluous appendages, and as such I would treat them. Of course I would regard a broken-capped bird in the same light as a bird having one heavily-marked wing and one lightly marked—*i.e.*, an irregularly or unevenly-marked bird.

With regard to Mules, I must differ from Mr. Hawman, inasmuch as they are exceptional. If a Mule had a cap on its head it would certainly be intercepted with the orange band that surrounds its bill, and in many instances extends over a very considerable portion of the head: hence the form of the marking would be broken, and consequently the bird regarded as Unevenly marked. I cannot see how Mr. Hawman can regard a bird with a dark saddle in the same light as an evenly-capped bird. I never knew anyone regard a bird with a dark saddle as Evenly marked. There is simply no question on the point; whereas the bird in question is a very debatable subject, and I believe that if the "ballot system" were adopted I should have a large majority in my favour.

There is another matter to which I should like to call attention, and that is to the definition of the word "variegated." It appears to mean with some committees "Evenly marked," whilst with others it is regarded as diametrically opposite, and I must give my vote with the believers in the latter interpretation, for I cannot see what diversity of colour has to do with "even marking." Plain terms should be adopted thus:—Evenly-marked or Unevenly-marked, if a distinction is intended; or in the case of Mules where the two classes are intended to be blended, I would say Marked or Variegated, and to mean marked in any way or anywhere, leaving the judge to act to the best of his judgment. Until this simplification in the classifying of birds for shows be generally adopted, much annoyance and dissatisfaction will be experienced.

As the majority of Canary-fanciers are working men—the backbone and sinew of our country, who have to toil hard for their daily bread, and have not time to study and decipher complicated terms, I would recommend all secretaries to simplify their schedules, and to adopt a uniformity of terms as far as it possibly can be done. It is time those small bones of contention were picked clean and disposed of, for until they are we cannot expect to sail smoothly and pleasantly on the bosom of our spirit-absorbing fancy.—R. C. WALLACE, *Berwick-on-Tweed*.

BIRD MARKET OF ST. PETERSBURG.

ONE of the most interesting places for the stranger to visit, in this world of markets, is that of the Tshukin Dvor, where the birds are sold. Two long rows of booths are full of living specimens of ornithology; Pigeons, Fowls, Geese, Ducks, Swans, Larks, Bullfinches, Siskins, and hundreds of other singing birds, are there collected, and form the most picturesque and variegated menageries that can be imagined. Each booth is of wood and open at the front, so that the whole of its contents may be seen at once by the passing stranger, who is saluted with such a concert of cackling, cooing, and warbling, as would suffice to furnish the requisite idyllic supply of melodies for a hundred villages. On the booths many swarms of Pigeons are

continually fluttering about, the peaceful Russian being a great lover of this gentle bird. Each swarm knows its own roof, and the birds allow themselves to be caught without much difficulty when a bargain is about to be concluded. The Pigeon is never eaten by a Russian, who would hold it a sin to harm an animal in whose form the Holy Ghost is said to have manifested Himself. Pigeons are bought, therefore, only as pets, to be fed and schooled by their masters. It is curious to see a Russian merchant directing the flight of his docile scholars. With a little flag fastened to a long staff he conveys his signals to them, makes them at his will rise higher in the air, fly to the right and left, or drop to the ground as if struck by a bullet from a rifle.

The poor little singing birds—the Larks, Nightingales, Linnets, Bullfinches, &c., must be of a hardier race than in more southern lands; for in spite of the bitter frost they chirrup away merrily, and salute with their songs every straggling ray of sunshine that finds its way into their gloomy abodes. The little creatures receive, during the whole long winter, not one drop of water, for it would be useless to offer them what a moment afterwards would be converted into a petrified mass. Their troughs are accordingly filled only with snow, which they must liquify in their own beaks when they wish to assuage their thirst. Moscow is famed for its cocks, and here the Moscow cock may be seen proudly stalking about in cages and out of them.

The best Pigeons are said to come from Novgorod, and Finland furnishes the chief supply of singing birds; Geese are even brought from the confines of China, to be sold as rarities in the Tshukin Dvor, after a journey of more than four thousand miles; grey Squirrels may be seen rolling about in their cages like incarnate quicksilver; while Rabbits and Guinea Pigs, without number, gambol their time away in their little wooden hutches. Within the booth, a living centre of all this living merchandise, is the merchant, closely ensconced in his wolf-skins. On shelves around are ranged the trophies of his murderous tribe, and the northern Swans, the Heathcocks (reptfhiki), and snow-white Partridges (kurapatki), are filled up under the very cages from which the captive Larks warble their liquid notes. It is astonishing what a quantity of these birds are yearly consumed at the luxurious tables of St. Petersburg. In winter the cold keeps the meat fresh, and at the same time facilitates its conveyance to market. The Partridges come mostly from Saratoff, the Swans from Finland; Livonia and Esthonia supply Heathcocks and Grouse, and the wide Steppes must furnish the trapp Geese which flutter over their endless plains, where the Cossack hunts them on horseback, and kills them with his formidable whip. All these birds, as soon as the life blood has flown, are converted into stone by the frost, and, packed up in huge chests, are sent for sale to the capital. Whole sledgeloads of snow-white Hares find their way to the market; the little animals are usually frozen in a running position, with their ears pointed and their legs stretched out before and behind, and when placed on the ground look at the first glance as if they were in the act of escaping from the hunter. The mighty elk is no rare guest in this market, when it patiently presents its horns as a perch for the Pigeons that are fluttering about, till, little by little, the axe and the saw have left no fragment of the stately animal, but every part of it has gone its way into the kitchen of the wealthy. Similar markets for birds and Game will be found in every large Russian city. And the habits and fashions of Russian markets are completely national.—(J. G. Kohls' "*Russia.*")

NEW BOOK.

The Dog: with simple Directions for his Treatment, and Notices of the best Dogs of the day, and their Breeders or Exhibitors. By Idstone. Twelve Engravings. Cassell, Petter, & Galpin, London.

This is a useful and entertaining volume. The forty-two varieties of dogs known in England are well described both as to their form and habits, and abundance of anecdotes enliven the whole. The introductory chapter on the management of dogs is characterised by strong sound sense, and one sentence in the preface we heartily approve, protesting as it does against trimming a dog's ears and tail, and warning that in training a dog kindness is always the most effectual agent, and punishment always perilous. Our earliest favourite was a "smooth black-and-tan terrier," and we will make a few extracts relative to that variety to enable our readers to form an estimate of the style and contents of the volume.

"Within the last few years two other points of excellence have been invented and upheld—what are called 'pencilled toes,' and the 'thumb mark.' The former is a black streak on the upper margin of the toe along its arch; the other a black oblong spot crossing the foot above the toes. According to some judges, the higher up the instep this mark occurs the better.

"The general formation of the black-and-tan is precisely similar to that of the white or other colour variety as to shape of the head, size of eye, and general structure, but the coat should be more glossy and the skin finer. Absence of hair, however, is a great deterioration, especially on the skull and tail.

"The colours should be strongly contrasted—the black intense; the tan brilliant and rich, without any mixture of black or smuttiness. A pale or clay-coloured tan is a great fault. The redder, or, as artists call it, the 'warmer,' the better. Above each eye there should be a spot of this colour well defined; the larger the better. The fore-legs should be tanned high up; the body black, with tan chest, neck, and throat; the cheeks, upper and lower, well tanned, and the nasal bone black; the inner thighs and the legs from hock to heel tanned; most judges agree that the outside of the hind-legs ought to be black; vent and lower part of tail tanned.

"Place this dog on short legs, do away with the fancy marks, leave his ears as Nature made them, and he would be a very handsome useful dog. As it is, he is an artificial creature, fit only to be led from show to show, to win cups and collars.

"The toy terrier of the black-tan class is the dwarf of this breed, got down by breeding and selection to the miraculous weight of from 5 lbs., and so low as 3 lbs.

"The pencilling and the thumb-marks are hereditary in these mites, and all the points are precisely similar to the larger sorts, except that it is almost impossible to get the coat on the skull and tail to cover the skin, and they are apt to have a wretchedly dropsical skull, which indicates hydrocephalus, which, however, rarely proves fatal to them.

"The best specimens of late years of the larger breed, of 14 lbs. and upwards, have been Mr. Hodgson's 'Queen,' Mr. Lacy's 'Queen the Second,' and his 'Saff' and 'Baffler;' and Mr. S. Lang, of Clifton, has exhibited and possessed some of the finest specimens ever seen."

"The old black-tan dog first noticed in this article was, and, indeed, he is, a dog of great intelligence, fond of his master, of the stable and its inmates; active, bold, fond of hunting, and, when crossed with the bulldog, capable of attacking our larger vermin, and always ready to face it. He will do anything a dog of his inches ought to do, and, but for his colour, which makes him indistinct in cover or the angles of a barn, no dog much surpasses him; and as white dogs kept in a town never look clean, I should advocate the black-tan terrier of 12 lbs. or 15 lbs. as the best possible house-dog or rat-destroyer for the professional man. He is patient with children; he follows well; he is the aversion of tramps and beggars; he always looks clean; if admitted to the hall, he does not bring a quantity of wet and mud with him, like the skye, dandy, or collie; and he does not brand his owner as a sporting doctor, parson, or lawyer in the eyes of Mrs. Grundy. Besides this, he is a good subject for education.

"Dogs vary, like men and women, in their power of application and their capacity for work, and the pupil may have no gifts; but a dog of average sense will learn to beg, to fetch, to carry, wait outside a house, to go into the water, or to dive. I have seen one of the sort, belonging to a relative, which walked on its hind-legs with the gravity of a poodle or a policeman; slept on the carriage-horse's back, and would ride on it as he went to his stable; picked up a pin with his tongue; and 'asked,' in his way, for what he wanted with the eloquent eye and gesture of a deaf and dumb human being educated to the highest point by such a philanthropist and man of talent, say, as Dr. Scott, of the Exeter Dumb Asylum, to whom I have already alluded as being a master of the science of signs and symbols."

We can add our testimony that this variety of the terrier is most teachable. A vision of one we possessed—old "Smut"—rises to memory as we write. He had been taught not to eat without permission, and often was he tempted by putting meat in a dish on the floor while we left the room, and invariably when we returned he was sitting in the corner furthest from the temptation, and trembling as if he feared his self-control would be overcome. Another dog of the same breed, belonging to a gentleman near Swansea, unattended carried the letter-bag to the post office daily, and waited until the letters were taken out and any that had to be returned put in. Immediately the bag was taken from him at home he scurried down into the kitchen, and smelt the cat's mouth to detect what she had eaten in his absence.

MEXICAN BEES.

We take the following interesting extract from the *Bee-keepers' Journal*:—

The bees of Mexico, like its climate, physical features, and all its forms of life, are closely allied to those of South America. On account of its more favourable location, however, we know more of the natural history of the former country than of the latter, and hence are enabled to present a more satisfactory account of its bees.

Immense quantities of wax are annually consumed in the ceremonies of the innumerable Catholic churches of that country, and on this account alone great attention is paid to the domestication and culture of bees. The honey is remarkably rich, and of a beautiful colour, and more recently large quantities of it have been shipped to the New York market, where it meets with ready sale, at figures which enable it to compete successfully with that of home production.

There are many large apiaries in Yucatan, rivalling in numbers and profit the most celebrated of our own country. These all consist of the natural species, which have been subjected to domestication. Hernandes, in his account of New Spain, describes several kinds—one resembling our own, which is domesticated, and hived in the hollows of trees, by the natives. Another species is described as stingless, and so much smaller than ours as to be called the "winged ants." Their nests resemble those of wasps, and are built in the rocks or suspended on the branches of trees. The honey is dark, but of good flavour. The cells are smaller than those of our species, and like the South American, contain brood only, the honey being contained in large vessels or cups. Hernandes states the natives regard the larvæ as a great delicacy, and when roasted and seasoned with salt, this dainty dish had the flavour of almonds. There are other species, small and stingless, that build underground, but their honey is of an inferior quality. The honey is thin in

consistence, but of a very agreeable flavour, and gives out a rich aromatic perfume. The wax is coarse, and of a brownish yellow; propolis does not appear to be used.

It may be added that the honey of this species does not ferment readily, but remains sweet long after its importation to this country.

OUR LETTER BOX.

Clarke—Scoles—Adderley.—We have reasons for believing that these are one and the same party. Inquiries are being made.

Books (*White Tulip*).—You can obtain it through any bookseller; we do not know the price.

Magic of Mis-spelling (*A. F.*).—You changed a room into a book by making "*a*" and "*i*" change places. You wrote "diary" instead of "dairy." You will hear from the maker.

Bantam Classes.—"I fully agree with Mr. Taylor and Mr. Jeffries in stating that Black Bantams and also Brown Red Game Bantams should have separate classes at the leading shows, and I am ready to give £1 as my subscription to each of these two classes, for a cup for them at Ipswich Show.—James W. Will, *Errol, Perthshire.*"

Books about Poultry (*St. Edmunds*).—The first with coloured portraits was by Johnson and Wingfield, and published in 1853. The publisher failing, the copyright passed to another, and the portraits were made use of by Mr. Tegetmeier, who was employed to edit it, and he began by copying the literary portion. There is now a re-issue. Mr. L. Wright's "Illustrated Poultry Book," of which two numbers have appeared, is entirely a new work, and far superior to its predecessor. We have seen the illustrations intended for future numbers, and they are the best we have ever seen.

White Dorking's Deaf-ear—Hamburgh with Brahma (*F. W.*).—The deaf-ear of a White Dorking is not an essential point, but it is certainly preferable that it should be red. We do not approve the cross between a Silver-spangled Hamburgh cock and a Brahma hen. We cannot see what your object is in proposing such a one. We have always believed, and we see no reason to alter our opinion, that the Brahma is one of the most useful of our fowls, inasmuch as it fulfils all the duties of its nature respectably. The Hamburgh only surpasses it in one particular—it lays, perhaps, a few more eggs, but the gain in number is lost in size; and although there are instances of their sitting well, yet as a rule they cannot be depended upon. If you wish for a cross we know none so good as that between the Dorking and Brahma. This makes a good layer, sitter, and mother, also an excellent table fowl. It is very hardy.

Marking Chickens (*Ignoramus No. 5*).—Take a stout wire or knitting-needle, and having made it red hot pass it through the web of the wing in any pattern you may choose, as .:, .·., :·: You can vary the marks in any way. They are quite imperceptible, and cannot be obliterated. It causes but little pain.

Crêve-Cœur Points (*B. B.*).—The chief points of a good Crêve-Cœur are square bodies, blue legs, black plumage, good beards, and top-knots. Some show spangles of white in their plumage. This is to be regretted, and such a bird cannot be shown with any hope of success, but it does not of necessity prove there is any impurity in the breed. All birds of black plumage are subject to these sports. Spanish would afford a good illustration. The white feathers in the top-knot are indicative of age, inasmuch as they seldom show in a pullet. The word age must be taken in a qualified sense; it does not mean that the bird is old, but that it has passed from the stage as a pullet—just as girls of sixteen call women of twenty-six old. As a rule, it must be admitted that, where perfection is desired, it is next to hopeless to look for it in the produce of parents that are themselves imperfect. But we are so sure that partially white top-knots are the rule of Crêve-Cœur hens at a certain age, that we should not hesitate to show two such put with a good and thoroughly black cock. No mixture of plumage can be permitted in this latter. We should not hesitate to breed your birds with mixed top-knots, but we would not breed from those with spangled bodies.

Andalusians with Brahmas (*St. Edmund*).—The illustrations by Harrison Weir are not to be had separately. If the Brahmas are only introduced after the eggs are laid they will have no influence on the colour of the chickens, but we will not affirm as much if they are always allowed to run with the others.

Glass Roof to Fowl House (*G. W. B.*).—There can be no objection to a glass roof to your fowl house in winter. In the summer it is far too hot. We should not recommend it for the shed. A wooden floor is always damp, and generally offensive. It absorbs filth, but it has no deodorising properties. Among other grave objections for the birds are two: first, that it is unyielding to the foot, and keeps it constantly on the stretch; next, that it affords no scratch for the bird. These are two of the many reasons why wooden floors cause swelled feet and joints, and are destructive to the health of those compelled to use them.

The Persian Carrier (*Cæsar*).—Enter it in the class for Any other distinct variety.

Hen Canaries Celibate (*J. R. S. C.*).—Give no stimulating diet of any kind, but plenty of green food. Do as you will, however, it is impossible to turn aside the current, and the poor things will suffer more or less from the unfortunate circumstances in which they are placed. Old maids are an institution never intended for this world.—W. A. Blakston.

Adapting Frames to Box (*J. T., Derby*).—We do not think your box is suitable for being transformed into a frame hive. It would be of but little service to you to start with such a makeshift affair. It is of the utmost importance that all the hives in the apiary, and all the frames or bars, should be made to one exact pattern, if you mean to adopt the moveable-frame system. Hives may be used varying as to the number of the frames, but every box should be so accurately constructed as to take any one of your stock of frames, these last, of course, being made equally exact. It is also necessary that the box should be made in the most substantial manner—that is, that the sides be so dovetailed and pinned together as to be incapable of starting or opening. You had better send five stamps to our office and obtain a copy of "Bee-keeping for the Many," which will give you full directions for the construction of the Woodbury frame hives. You can only ascertain if your hives require any more feeding by lifting or weighing them. If very light a little food may be given with great advantage.

Moving Hives into Bee House (*A. Z.*).—You had better move your hives gradually one at a time, beginning with the one nearest to the bee house. Shift it a few inches every day until you get it opposite the part of the bee house it is intended to occupy, which may be the furthest end. Having brought it in a line with its new entrance, place it inside the house, and proceed to treat the rest in the same way. If you attempt to move the hives suddenly you will have confusion, fighting, and much loss of life. We cannot enlighten you as to the best and cheapest hive for a cottager, as so much depends on his intelligence. What would be a profitable investment for one would be dear at any price for another. For information as to the price, &c. of the Woodbury hive, apply to Messrs. Neighbour, 149, Regent Street, London

Foul Brood (*J. R.*).—We cannot decide until we have read your notes.

METEOROLOGICAL OBSERVATIONS,

Camden Square, London.

Lat. 51° 32′ 40″ N.; Long. 0 8′ 0″ W.; Altitude 111 feet.

Date.	A.M.					In the Day.				
1872. April.	Barometer at 32° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 ft.	Shade Temperature		Radiation Temperature.		Rain.
		Dry.	Wet.			Max.	Min.	In sun.	On grass	
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 3	29.647	39.5	39.0	N.	46.5	49.5	38.2	84 2	37 3	0.015
Th. 4	29.902	41.8	37.6	N.W.	45.0	50.0	33 0	98.0	26.2	0.125
Fri. 5	29.293	45.0	43 6	N.W.	44 2	56 8	34 2	99.3	31.8	—
Sat. 6	30.461	42.2	38.4	N.	45 0	49.8	39.0	68 8	38.2	—
Sun. 7	30.456	47 6	42.8	N.E	45 6	60 2	36 5	65 0	29.8	0.045
Mo. 8	30.087	53 8	51 6	W S W.	46.4	62.0	48.0	94.6	44 3	—
Tu. 9	30.248	49 5	43.7	N.W.	48.0	59.5	39.8	100.0	35 4	—
Means	30.014	45.6	42.4		45.8	55 4	38.4	91.5	34.8	0.185

REMARKS.

3rd.—Dull in early morning, fine at 9 A.M., and so continued till 5 P.M., then dark and a shower; fine starlight night.

4th.—Fine morning, but cold rain at 1 P.M., and again at 5 P.M., and in the evening, but fine night.

5th.—Fair throughout, and at times beautifully bright, cold in the morning, but warmer after the sun had been out awhile.

6th.—Fair, but cold and rather cloudy all day.

7th.—Very fine throughout the day, bright sun, but rather cool and cloudy towards evening.

8th.—Slight showers in the morning, fine the remainder of the day, and very clear at night.

9th.—A very beautiful day, fine and bright morning, noon, and night.

The mean temperature in all cases (except underground and in the sun) lower than last week; but from the absence of cloud and rain it has been a great improvement on the recent weather, and though cold has been very enjoyable.—G. J. Symons.

COVENT GARDEN MARKET.—April 10.

Business is a trifle better, but not at all brisk; quotations remain nearly the same. Of good English Pines the supply is short, but some excellent ones are still coming from the Azores. Out-door Asparagus is becoming plentiful, and large consignments arrive from the Continent.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples ½ sieve	2 0 to	4 0	Melons each	0 0 to	0 0
Apricots doz.	0 0	0 0	Mulberries lb.	0 0	0 0
Cherries lb.	0 0	0 0	Nectarines doz.	0 0	0 0
Chestnuts bushel	10 0	20 0	Oranges per 100	4 0	10 0
Currants ½ sieve	0 0	0 0	Pears, kitchen doz.	4 0	6 0
Black do.	0 0	0 0	dessert doz.	4 0	12 0
Figs doz.	0 0	0 0	Pine Apples lb.	6 0	10 0
Filberts lb.	0 6	1 0	Quinces doz.	0 0	0 0
Cobs lb.	0 6	1 0	Raspberries lb.	0 0	0 0
Grapes, hothouse lb.	10 0	25 0	Strawberries per lb.	10 0	20 0
Gooseberries quart	0 0	0 0	Walnuts bushel	10 0	25 0
Lemons per 100	7 0	10 0	ditto per 100	1 0	2 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes doz.	4 0 to	6 0	Leeks bunch	0 2 to	0 0
Asparagus per 100.	4 0	10 0	Lettuce doz.	1 0	2 0
Beans, Kidney per 100	1 6	2 6	Mushrooms pottle	1 0	2 0
Broad bushel	0 0	0 0	Mustard & Cress punnet	0 2	0 0
Beet, Red doz.	1 0	3 0	Onions bushel	2 0	4 0
Broccoli bundle	0 9	1 6	pickling quart	0 6	0 6
Brussels Sprouts ½ sieve	0 0	0 0	Parsley per doz. bunches	3 0	4 0
Cabbage doz.	1 0	1 6	Parsnips doz.	0 9	1 0
Capsicums per 100	0 0	0 0	Peas quart	3 0	5 0
Carrots bunch	0 6	0 0	Potatoes bushel	2 0	3 6
Cauliflower doz.	2 0	5 0	Kidney do.	3 0	5 0
Celery bundle	1 6	2 0	Radishes doz. bunches	0 6	1 6
Coleworts doz. bunches	1 0	3 0	Rhubarb bundle	0 3	1 6
Cucumbers each	0 6	1 6	Savoys doz.	0 9	1 0
pickling doz.	0 0	0 0	Sea-kale basket	1 6	2 4
Endive doz.	2 0	0 0	Shallots lb.	0 4	0 9
Fennel bunch	0 3	0 0	Spinach bushel	3 0	4 0
Garlic lb.	0 8	0 0	Tomatoes doz.	0 0	0 0
Herbs bunch	0 3	0 0	Turnips bunch	0 3	0 0
Horseradish bundle	3 0	4 0	Vegetable Marrows doz.	0 0	0 0

POULTRY MARKET.—April 10.

We are gradually approaching our time of dearth. The winter fowls are nearly gone, and the young ones are hardly ready. Prices are consequently more than maintained.

	s. d.	s. d.		s. d.	s. d.
Large Fowls	4 6 to	5 0	Partridges	0 0 to	0 0
Smaller ditto	4 0	4 6	Hares	0 0	0 0
Chickens	3 6	0 0	Rabbits	1 5	1 6
Goslings	8 0	8 6	Wild ditto	0 9	0 10
Ducklings	4 0	4 6	Pigeons	0 9	0 10
Guinea Fowls	3 6	0 0	Pheasants	0 0	0 0

WEEKLY CALENDAR.

Day of Month	Day of Week.	APRIL 18—24, 1872.	Average Temperature near London. Day.	Night.	Mean.	Rain in 43 years. Days.	Sun Rises. m. h.	Sun Sets. m. h.	Moon Rises. m. h.	Moon Sets. m. h.	Moon's Age. Days.	Clock after Sun. m. s.	Day of Year.
18	Th	Meeting of Royal and Linnean Societies.	56.8	38.0	47.4	16	59 af 4	0 af 7	after.	33 af 8	10	0 48	109
19	F		59.0	35.6	47.3	10	57 4	2 7	4 2	18 9	11	1 1	110
20	S		60.3	35.1	47.7	17	55 4	3 7	18 3	3 10	12	1 14	111
21	Sun	3 Sunday after Easter.	59.5	37.2	48.3	16	53 4	5 7	33 4	48 10	13	1 27	112
22	M	Meet. of Royal Geographical Society, 8.30 P.M.	59.0	37.4	48.2	22	51 4	6 7	52 5	35 11	14	1 39	113
23	Tu		59.2	36.8	48.0	21	49 4	8 7	14 7	morn.	☽	1 51	114
24	W	Meeting of Society of Arts, 8 P.M.	58.8	36.0	47.4	17	47 4	10 7	38 8	25 0	16	2 2	115

From observations taken near London during forty-three years, the average day temperature of the week is 58.9°; and its night temperature 36.6°. The greatest heat was 77°, on the 18th and 19th, 1854; and the lowest cold 18°, on the 24th, 1854. The greatest fall of rain was 1.40 inch.

STRAWBERRY CULTURE.

THE purpose of this communication is not to give an exhaustive treatise on the Strawberry, but rather to show the importance of high culture and a close attention to details in the earliest stages of its growth. Owing, probably, to its hardy nature, and the fact that it will generally afford some fruit under the worst management, it has, I think, been subjected to more neglect than almost any other fruit. The directions for its culture generally have been so repeatedly and clearly propounded in the pages of the Journal that it would seem unnecessary to enter farther upon it; but when from those who have evidently been striving for success with some degree of earnestness, there come bad reports of such a fine and robust variety as Dr. Hogg, it is evident that they have failed either to comprehend these directions, or to apply them rightly. I happen to have had considerable experience in the cultivation of Strawberries in different soils —in a deep rich loam, in a light and very sandy loam, in a poor shallow soil unworthy to be classed as loam, and in heavy clay, and from the good results obtained in each instance I have no hesitation in stating that the poorest soil may be brought into a suitable condition for Strawberry culture. In doing this due attention should first of all be given to making any necessary drains to insure the absence of stagnant water, and then the soil should be trenched about 2 feet deep and thoroughly manured. This is done by placing a layer of 6 to 9 inches of rich manure over the surface, and mixing it well with the soil as it is trenched.

This is done in autumn, and the bed left uncropped till the Strawberries are planted in the following July; the weeds in the meantime being kept down, and a fork passed lightly through the surface as the planting-season approaches. Careful attention should be given to the preparation of the young plants, as success very much depends upon this. The first runners are watched for, and laid in rich soil in 3-inch pots, and when the roots reach the sides and bottom of the pots the connection between the old and young plants is severed. This must not be done prematurely, for if the young roots are not well developed the plants sustain a severe check, which is shown by the drooping foliage and the slowness with which the roots lay hold of the soil of the new bed, into which the whole of the young plants are turned immediately.

This is another cultural point worthy of attention—that if the plants, after being separated, are left standing for a day or two in the clear bright July sun before they are planted, water must be given plentifully. This will not always prevent drooping, but even if it did it would be far more conducive to the progress of the plants to include the separation and planting under one operation. The new bed should be watered regularly, and the surface soil kept well stirred with a hoe, and then, if all has gone well, the vigour of the plants will help to carry them through the vicissitudes of the winter unscathed, and a fair crop of fine fruit may be confidently expected earlier in the following summer than from older plants.

It will thus be seen that, in common with most other successful cultivators of this desirable fruit, I lay much stress upon the first year's culture, knowing from experience that unless the few simple details given are not closely followed, no after-care will suffice to impart the requisite stamina to plants that have suffered much from neglect or improper culture. There is a difference between growing and cultivating a plant, and which many persons do not appear to understand. The first may be defined as simply bestowing sufficient care upon a plant to insure its existence, while it is allowed to grow very much at random. The second, as implying a constant watchfulness and care, affording everything in both training and culture that appears beneficial to its nature or is calculated to bring it to as high a state of excellence as possible. Not until this difference is fully recognised can much success be hoped for.—Edward Luckhurst.

CULTURE OF CELERIAC.

This is known by many people as Turnip-rooted Celery, and is, I believe, grown on the Continent to a very great extent for use in the autumn and winter months. In England it is not so much grown, in consequence either of the non-appreciation of its merits or the ignorance of its culture. Even if it were grown I am not sure that it would gain the approval of everyone who tasted it. I have grown it for some years, and latterly have been called upon to give some particulars of its culture. From the nature of these inquiries I glean that it is a vegetable as little known as if it had been but recently introduced into this country. It has, however, been cultivated in this country for many years, and is, I believe, a British plant, which makes it the more surprising that it should be so little known and cultivated. Its culture is of the simplest description, and it requires but little room compared to many crops.

In April and early in May are the times to sow. The seeds for two crops should always be grown—the first for autumn use, and the second for winter and spring use. A small quantity of seed sown in a pan or box, with the same preparation as for Celery, will do well. The plants should be pricked-out on a border of well-prepared soil, and should be watered very carefully from first to last as the state of the weather compels, for this is the principal element of success in the culture of Celeriac.

This being a Turnip-rooted sort of Celery, no earthing-up as for other sorts is necessary; but when the plants are large enough for finally planting-out, a piece of ground should be well manured, deeply dug, and levelled, and the plants put at a distance of 1 foot from each other in rows 18 inches apart. The after-treatment simply consists in keeping the ground frequently stirred with the hoe, and at times drawing the earth in sufficient quantity from the root with the hand, so as to be able to pull off all suckers surrounding the heart of the plant. This process will tend very much to increase the size of the

root, and as it is the root that is eaten, this part should be blanched. Enough earth only for that purpose will, therefore, be required to be left round the stem.

Nothing but attention to the above details will be required until the crop is ready to use, which generally happens in October for the first crop; and the second crop, which is much later, I usually take up, trim off all the tops, and lay the roots up amongst sand or dry earth in the storehouse, to be used when hard weather sets in. If this vegetable is planted in a deeply-dug and well-drained soil, it will be benefited with water every alternate day in dry weather.—Thomas Record.

ALPINE AURICULAS.

I can assure "G. S.," who writes on the above subject, that there are many who agree with him in considering the Alpine Auricula exceedingly pretty, and who hail with satisfaction the progress which Mr. C. Turner has made with them, but he will hardly persuade a florist with antiquated notions that they deserve a higher position than that which is assigned to them. "G. S." seems to think the greater ease with which they are cultivated will give them a higher place in favour; it may do so, but to an Auricula-grower that very difficulty—greatly and grossly exaggerated, I believe—is one great charm of the flower. A true worker delights in nothing so much as the overcoming of difficulties; and to pilot a good collection of Auriculas through summer's suns and winter's frosts and damps until, as now, the stage is filled with blooming beauties, is a cause of intense satisfaction.

I hardly think "G. S." has a right to complain that the Alpine Auricula does not receive a fuller description in the catalogue of Mr. Turner than it has; it is certainly meagre enough, but so is that of the florists' Auricula. Why Auriculas altogether should be thus treated I know not, but so it is. There is one thing to be borne in mind—the lists alter but little, new varieties are few and far between, and hence there is not the same need for description. People know them, and when new varieties are introduced a description is given of them. But Dahlias, Verbenas, Pansies, &c., are for ever being added to, and that in large quantities, so that there is a necessity for giving their descriptions.

Additions are being made to the number of Alpines, but I think "G. S." would find the following selection well worthy of growing. It should be remembered that the colours are mostly either varieties of crimson in the way of old Brutus, or shaded violet in the way of Conspicua.

Black Prince, dark maroon.
Conspicua, shaded yellow.
Defiance, crimson.
Field Marshal, dark maroon.
John Leech, dark crimson.
Jessie, shaded violet.
Masterpiece, dark maroon.
King of Crimsons, rich bright crimson.
Novelty, shaded violet.
Eleanor, dark crimson.
Wonderful, shaded crimson.
Landseer, dark crimson.

In selfs I can strongly recommend the following:—

Blackbird (Spalding), dark.
Formosa (Smith), shaded mauve.
Lord Clyde (Lightbody), dark maroon.
Metropolitan (Spalding), a bright purple.
Mrs. Smith (Smith), dark.
Mrs. Sturrock (Martin), bright crimson.
Nonsuch (Barker), bright purple.
Othello (Netherwood), dark maroon.
Pizarro (Campbell), rich dark flower.

To "An Old Subscriber," who asks if there is any way of forcing Auriculas and Pansies into bloom, I say Yes; but I would give *Punch's* advice, "Don't." It will injure the plants. If you wish to do it put them under a hand-glass, slightly shade, and water the ground well. The heat will produce an evaporation which will soften the petals, and the heat will expand them, but I never like to do it.—D., *Deal*.

Liverpool Fancy Fair and Flower Show, in aid of the new Southern Hospital, in Sefton Park during Whitsun week—the schedule of prizes for this Horticultural Exhibition (May 21st to 23rd) is very liberal. It will be opened by His Royal Highness Prince Arthur. The growth of grand examples of good gardening, so plentifully exhibited at Kensington, the Royal Botanic Gardens, and at Manchester, Leeds, and elsewhere, we are informed, has for some years been neglected at Liverpool, though in the matter of spring and winter blooming plants our informant thinks the Liverpool gardeners stand in the front rank. He is sure that those in the trade who take some of their plants there will be well rewarded, as there is a growing taste for Heaths, Azaleas, Palms, &c., of ample size.

LACK OF SPRING FLOWERS IN THE LONDON PUBLIC GARDENS.

On the 29th of February you published a list of seventy-five flowers then blooming in the Botanic Gardens, Glasnevin, Dublin. Annexed I beg to hand you names of those now (April 5th), in blossom. Subscribers fond of spring flowers will probably thank you if you will publish it. Evidently there need be no bare beds during any portion of the year, but with little trouble and slight expense a succession of interesting and beautiful plants may be kept up from February to November without the aid of tender exotics.

There is hardly a cottage garden in the kingdom but has been gay with flowers during the past month. Surely among the sorts of flowers which flourish in these humble places, and by their bloom reward the occupiers and please the passers-by, are some which would thrive in the gardens on the Thames Embankment, and in the beds in Palace Yard. It may be that the little money required will be provided by Government, and that next spring will produce an appearance, from seeds sown and plants arranged, that will afford a contrast to the gloomy soil which this season lies uncovered, and thereby gratify the million.—P. N. W.

Hardy Plants in Bloom in Dublin Botanic Gardens, 5th April, 1872

Anemone stellata
apennina
rutæfolia
thalictroides (Thalictrum anemonoides)
Aubrietia grandiflora
graeca
Armeria cephalotes
Arabis alpina
blepharophylla
lucida variegata
Alyssum saxatile
Ajuga pyramidalis
Adoxa
Berberis Darwinii
Caraway
Cochlearia officinalis
Clematis calycina
Cytisus
Corydalis nobilis
bracteata
Cheiranthus longiflorus
Cardamine bifolia
rotundifolia
Drabas
Dentaria digitata
Dodecatheon splendens
Doronicum Columnæ
Dielytra speciosa
Erica mediterranea
alba
arborea
herbacea
carnea
Epimedium, three kinds
Erodium hymenodes
Fritillaria imperialis
meleagris alba
ruthenica
contorta
præcox
lutea
nigra
Fedia cornucopiæ
Genista præcox
Gentiana acaulis
verna
Geum intermedium
Gorse
Hyacinths
Honesty
Helleborus fœtidus
Iberis Garrexiana
garganica
gibraltarica
Iris pumila
Jonquils
Linum fruticosum
Leucojum æstivum
Laurustinus
Lithospermum orientale
Mahonia
Matthiola græca
Milla alliacea
unifiora
Muscari botryoides
Myosotis alpestre
Narcissi
Nemophila insignis
atomaria
Nonea flavescens
Orobus vernus
vernus fl.-pl.
alpestris
Ornithogalum refractum
Oxalis Acetosella
Pentstemon Scouleri
Primula decora
veris
acaulis
purpurea
cortusoides amœna
Fortunei
Potentilla alba
Polygala Chamæbuxus
Pulmonaria grandiflora
Puschkinia scilloides
Ribes
Rhododendron fragrantissimum
Ranunculus amplexicaulis
montana
aconitifolia
Saxifraga cordifolia
longifolia
oppositifolia
orientalis
Spiræa salicifolia
crenata
Symphytum bohemicum
Stocks
Stellaria Holostea
Tritoma pumila
Trichonema Bulbocodium
Tulips
Vella Pseudo-cytisus
Viola palmaensis
lutea
grandiflora
montana
Vincas
Veronica serratifolia
Vesicaria utriculata
Wallflowers

LABYRINTHS.

Our neighbour, *Punch*, recently represented the picture-costume of the grandmamma revived in that of her grand daughter, who was looking at her portrait; and so it must needs be, for

"Fashion! fickle, vagrant thing,
For ever gaily on the wing,"

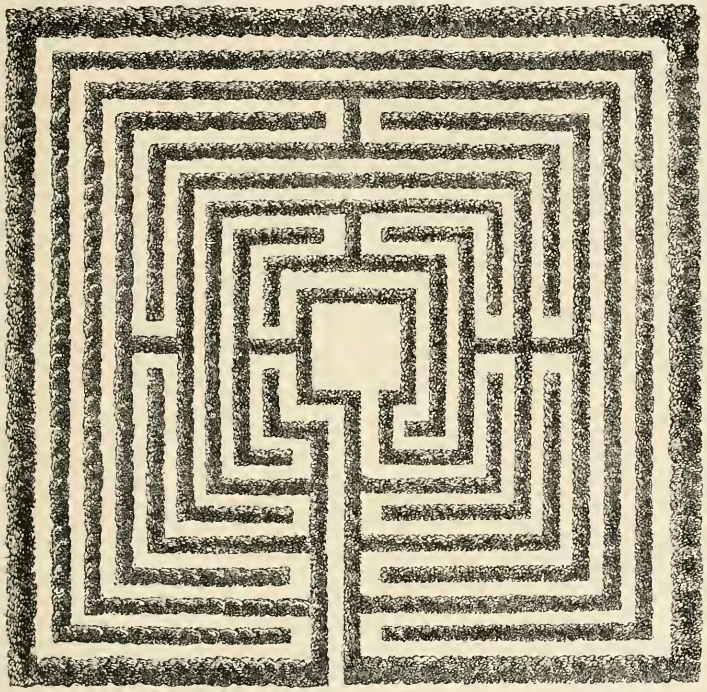
must return from time to time to forms and colours previously assumed. Such recurrences are in the garden as much as in

the dressing-room. The bedding-out system, the arranging flowers in patterned beds, is only a return to the "knots," of which drawings are contained in Meager, Blake, and other authors who wrote on gardening two centuries by-gone.

Another fashion of that age is reviving, for we have had inquiries how "a labyrinth should be constructed, and what shrubs are suitable?" In reply we might refer our questioners to a volume published in 1250—De Cerceau's "Architecture"—for nearly every garden plan in that contains either a round or a square labyrinth, or one of each. A later authority, Stephen Blake, we have already referred to, and from his quaint and rare quarto we copy the following:—

This and every garden labyrinth is formed of walks about 5 feet wide, enclosed on each side by a hedge. If Yew hedges could be promptly created and attain rapidly to such a height and breadth as those at Blickling Hall, in Norfolk, they would be the most preferable. If we were about to construct a labyrinth we should try to form the hedges of Laurustinus, for we have on our memory the broad Laurustinus hedges at Battle Abbey; but Privet, that cheapest and live-anywhere evergreen, is very suitable.

The labyrinth in the Royal Horticultural Society's Garden at South Kensington occupies about a quarter of an acre, which is about the smallest size advisable. Its hedges are



formed, the outer one of Holly, the inner ones of Hornbeam. That at Hampton Court is of similar extent, and the hedges of Elm, which, of course, are leafless during half the year.

Switzer, in his "Iconographia," published in 1788, published a drawing of a very intricate labyrinth, and another of that at Versailles, which he says was "the noblest in the world."

RED BEET FOR FLOWER GARDENS, &c.

"Q. Q." (page 269) seems disposed to find fault with me for not being an enthusiastic advocate of Beet. It is everything I have stated it to be, as quoted by "Q. Q.," yet I do not like it in a flower garden, for my eye has been so accustomed to see it elsewhere, that it always appears to me a thing out of place. Those who can look upon it without being reminded of a vegetable garden may have no objection. The things I consider the greatest of all abominations in gardens are—1st, Fruit trees both in and out of doors associated with flowering plants; 2nd, Flowering and fine-foliaged plants in fruit-tree borders; 3rd, Fruit trees or vegetables in a flower garden. The place for flowers and ornamental-foliaged plants is the flower garden or plant houses; for fruit trees, the fruit garden or houses; and for vegetables, the kitchen garden. It is neither good cultural policy nor taste to strive to form a combination of the beautiful and useful in the same place. What! not have flowers, fruits, and vegetables in one spot! I say, and ever shall say, Not if you can help it. We may dispose of a kitchen garden both as a fruit and vegetable ground, and also for flowers, and by having them in separate compartments run no risk of failure; but I see in this something which "Q. Q." evidently does not. I despise Beet and every other kind of vegetable in a flower garden; but though I cannot tell of Dracænas with shoots tender and useful as Asparagus, I can tell him that D. australis is a grand subject for the summer flower garden, one that will never remind him of the kitchen garden and cook.

I am surprised that "Q. Q." has not noticed the remarkable elegance and grace of Asparagus. There is no plant that can vie with it, not even Humea elegans. Then for nobleness

and distinctness of feature, find a plant to compare with the Globe Artichoke. What plant is there that has such a leaf-development, and such grand umbels of white inflorescence, as Rhubarb? Let "Q. Q." form a bed of vegetables in the flower garden; Rhubarb would give him a fine centre, Globe Artichokes would do next, then bright crimson or rose-variegated Kale, surrounded with Salsafy, a broad band of Beet, and an edging of Lemon Thyme. I think, if well managed, such a bed would create a sensation. I appreciate as much as anyone endeavours in the direction of adding beauty to usefulness. In the flower garden we do not expect more of a plant than that it should be useful for the purpose it is put to, but it must be beautiful in form, in marking, or in colour. As "Q. Q." does not object to vegetables in flower gardens so long as they are beautiful and serve his purpose, I presume he would not object to see vegetables arranged with flowers at exhibitions. Place trays of vegetables alternately with trays of cut flowers—tastes differ; but at an exhibition I should keep flowers and plants to themselves, also fruits and vegetables.

I have no sympathy with those who cannot endure the sight of Sea-kale, Asparagus, Rhubarb, and Jerusalem Artichokes, to say nothing of Globe Artichokes, merely because for their successful cultivation they require at a certain time material which is thought unsightly. I consider that if vegetables are required good they must have whatever is necessary for their proper development, and ought not to be placed in out-of-the-way corners or smothered by screens. If a thing is worth growing at all, it is worth growing well; and if it is so unsightly that it cannot be endured, it will be more satisfactory to discard it altogether than put it in a corner where it cannot please the grower or consumer. It would be far better for all concerned to keep the vegetable garden for vegetables, the fruit garden for fruits, and the flower garden for flowers. There is no reason why a kitchen garden should at any time contain anything unsightly. I have my Raspberries covered with litter 9 inches deep, also Black Currants, Sea-kale, and Rhubarb; no one complains of their unsightliness, and they are not in out-of-the-way corners, but in the main quarters of the kitchen garden; in fact, they have a very comfortable look, and I am told the Sea-kale, &c., is excellent, which is better than the grumbling that accompanies its growth in corners where it is thrust to gratify the offended vision of those who are the first to complain. There is no excuse for untidiness, and the most unsightly of objects—litter, may be made neat by a little extra care in putting on. Even in the disposition of vegetables appearance may be kept up to a great extent by a judicious arrangement. Last year I put in my roots in this order:—Beet, Salsafy, Beet again, Carrots, Parsnips, then Onions, Chicory for roots for forcing for salads, Carrots, Scorzonera, Beet, Salsafy, and Beet—a whole plot, with Beet at both ends. I was told it was useful and beautiful, and by the individuals who do not object to see litter over Sea-kale.

I was going to say that the greatest advance I know to have been accomplished of late years in the way of adding beauty to usefulness, is that accomplished by Mr. Rivers in improving the size, beauty, and persistency of Peach blossoms. Some of them are really beautiful, and might advantageously be used for decorative purposes. Early Alfred Peach has a very large blossom, with deeper-tinted base. This Peach has a smooth skin like a Nectarine, and is very excellent, having a very peculiar and agreeable flavour. Then there is Dr. Hogg, Early Beatrice, Early Rivers, Early Silver, Large Early Grosse Mignonne, Rivers's Early York, the Nectarine Peach, and for size as well as beauty, Lord Palmerston and Princess of Wales. These are all worth growing, if only for their flowers. Early Alfred and the last two are simply grand, whilst the fruit is as good as, nay better than, any we had prior to their introduction. Magdala, in addition to large flowers, has finely-marked fruit—creamy white, marbled and blotched with crimson. Fine as these are, I consider a seedling I had last year from Mr. Rivers, marked "Seedling" only, is as fine as any, if not finer, as regards its blossoms, they being very large, deeper peach-coloured than Early Alfred, with a fine salmon-coloured base, and very persistent. It has magnificent foliage, and is a very prolific and a good Peach. Another, marked "From S. 24," has fine flowers, but not equal to that marked "Seedling."—G. Abbey.

THE RANUNCULUS.

Many thanks, "Senex," for your kindly appreciative memo. on this beautiful flower. It was that which, as I have before said, made me a florist, and to this day I remember as clearly as if it were yesterday the garden of the "Uncle Balter," of a schoolfellow, where I first saw it in perfection. I was a mere boy then, and although I cannot speak of "fifty years" since that time, yet can I say my head (if not my hair), is "like the snaw," and I have never since then been so moved by the sight of flowers as by that. Lilium auratum, Primula japonica, beds of Gladioli, stages of Auriculas, and such things have often stirred-up my enthusiasm, but never equal to that. It may rejoice "Senex" to know that the Metropolitan Floral Society offer prizes for it now at the Crystal Palace, June 11th, and that the Royal Horticultural Society has for the first time introduced it into their schedule. I am now looking out on two beds where I have planted three thousand tubers, containing all Mr. Lightbody's well-known collection, and a number of the old Dutch sorts; they look well, although they require more room than I have been able to give them, and I hope to have much enjoyment from them by-and-by.—D., *Deal*.

ROYAL HORTICULTURAL SOCIETY.

April 17th.

This Show, like the last, was again held in the conservatory; and though the Azaleas, which were intended to be the main feature, did not present any advance in a cultural point of view over those exhibited in former years, they held their own, and the other departments of the Exhibition were in all respects excellent, rendering it a success only second to the Hyacinth Show. The day was fine, and there was a good attendance of visitors, among whom were two of the young Princes from Marlborough House.

In the open class for nine Azaleas, Messrs. Lane, of Great Berkhampstead, stood first with pyramidal plants, ranging from 3 to 4 feet high. President Humann, The Bride, and Kinghorni were in excellent bloom, especially the first named. The others were Enlalie Van Geert, Souvenir de l'Exposition, Stella, Roi Léopold, Comet, and Perfection. Mr. Turner, of Slough, was second with a group of excellently bloomed plants, mostly grown with bushy heads on stems from 6 to 12 inches high. These were masses of flower, and consisted of such brilliant-coloured varieties as Stella, Eugène Mazel, salmon scarlet, with purplish crimson blotches; Hoolbrinkii, and Triomphe de Gand. Alexander II., Belle Gantoise, and Princess Eugène made up the remainder trained in this form, the other two being well-flowered plants of W. Bull and Louise Margottin. In the amateurs' class for six, Mr. G. Wheeler, gardener to Sir F. H. Goldsmid, Bart., was first with plants about 4 feet high, in very good bloom. In the nurserymen's class for six, Messrs. J. and C. Lee, of Hammersmith, had a first prize; and Mr. Turner and Mr. Wheeler took the prizes for single specimens.

Class 5 was for six forced Rhododendrons. Of these Messrs. Lane were the only exhibitors, taking a first prize for a fine group, in which Fastuosum flore-pleno, Lord John Russell, Madame Van de Weyer, and Sherwoodianum were the most conspicuous. Messrs. Lane were also first for cut trusses, among which they exhibited Joseph Whitworth, Sir Robert Peel, and other fine varieties. They likewise sent an excellent group in the miscellaneous class, taking for it an extra prize.

Auriculas were shown in considerable numbers, as, in addition to the Society, the Metropolitan Floral Society likewise offered prizes. Mr. Turner, of Slough, was first for twelve with Miss Giddings (Read), Smiling Beauty (Heap), Competitor (Turner), Incomparable (Taylor), Col. Champneys (Turner), Metropolitan (Spalding), Ne plus Ultra (Fletcher), Alderman Wisbey (Turner), Alderman Charles Brown (Headley), Maria (Chapman), and Catharina (Summerscales). This collection was very fine both as regards the size and number of the pips on each truss. Second came Mr. James, gardener to W. F. Watson, Esq., Isleworth. For six the Rev. H. H. Dombrain, Westwell Vicarage, Ashford, was first with trusses in which the pips were very large without being coarse. The varieties were Mayflower (Traill), Model (Gains), George Lightbody, Pizarro (Campbell), Waterloo (Smith), and Lancashire Hero. Mr. James was second.

In the Metropolitan Floral Society's classes the Rev. H. H. Dombrain was first for six, Mr. James second, and H. Little, Esq., Twickenham, third. The remaining collection came from Mr. Butcher, Camberwell. For one Green-edged variety Mr. Turner was first with Leigh's Colonel Taylor; Rev. H. H. Dombrain second with Admiral Napier; and Mr. James third with Lovely Ann. For Grey-edged the same exhibitors took the same relative positions for George Lightbody; also for White-edged with John Waterston, and Ne plus Ultra second and third. For selfs the Rev. H. H. Dombrain was first with Spalding's Metropolitan, very fine in truss and splendid in colour; Mr. Turner being second with Pizarro, and Mr. James third with Mrs. Smith.

Of twelve Alpine Auriculas Mr. Turner sent a splendid group of fine varieties of his own raising. For this he took the first

prize, the second and third going to Mr. James, and Mr. Goddard, gardener to H. Little, Esq., Twickenham.

Of Pansies in pots very good examples were shown. The prizes went to Mr. James; Mr. Hooper, Widcombe Hill, Bath; and Mr. Ware, Tottenham.

The best collection of hardy spring-flowering plants in a basket not exceeding 4 feet in diameter came from Mr. Ware, Hale Farm Nursery, Tottenham; a truly charming group it was, and very effectively arranged. Among its occupants were Lily of the Valley and Solomon's Seal, Primula cortusoides amœna, Trillium grandiflorum, Trollius altissimus, the Lady's Slipper, varieties of Iris pumila, and numerous other plants. The second prize went to Mr. G. Wheeler.

The miscellaneous groups formed more than one-half, and to most persons the more attractive half, of the Show. Foremost among them was a large collection of valuable plants sent in beautiful condition by Messrs. Veitch, of Chelsea. Among them may be noticed two very handsome Dracænas—Weismannii and Youngii, the latter with very broad deep bronzy foliage—Croton Weismannii, a very handsome kind, Cypripedium niveum figured in No. 528, Odontoglossum Alexandræ very fine, splendid specimens of Anthurium Scherzerianum, Oncidium hastatum, O. bifolium, Masdevallia Lindeni, lovely violet rose, M. Harryana, and M. Veitchii; a number of Japanese Maples with beautifully cut leaves, brownish red or green, and several plants of Clematis Lord and Lady Londesborough and Miss Bateman. Messrs. Veitch also exhibited a plant of Chanthus puniceus, flowered in the open ground, and that freely. Mr. Bull sent also a large and well-varied group of Orchids and mixed stove and greenhouse plants, among which we noticed Rudgea macrophylla, a variety of Cypripedium caudatum, Masdevallia ignea, Cypripedium niveum, and several good specimens of other plants. From Mr. Denning, gardener to Lord Londesborough, Grimston Park, Tadcaster, came a splendid collection of Orchids, in which were very fine specimens of Arpophyllum giganteum, one with nine the other with thirteen spikes—we do not remember ever having seen this plant finer. Cattleya Skinneri, Odontoglossum radiatum, Dendrobium Jenkinsi, and Epidendrum ibaguense.

From Messrs. Rollisson came an excellent group containing several Orchids; from Mr. C. Noble, Sunningdale, a collection of fine Clematis, in which Mrs. Howard Vyse, Albert Victor, and Miss Bateman were conspicuous, the first two as mauve blue, the last as an almost white variety. Messrs. J. Standish and Co., of Ascot, sent a fine basket of Bouvardia jasminiflora, some beautifully-coloured Cinerarias, and a number of the singularly cut-leaved Japanese Maples. Mr. G. Bland, gardener to Earl Kilmorey, Gordon House, Isleworth, had a cultural commendation for Anthurium Scherzerianum with twelve large spathes, besides some going off and others expanding. M. Louis Van Houtte, of Ghent, sent fine groups of new Chinese Azaleas, also varieties of A. mollis. Of the former several received first-class certificates from the Floral Committee. Messrs. Veitch sent a small group of excellently-bloomed Azaleas; M. J. Vervaene, Faubourg St. Licken, Ghent, a very good specimen of Beauté Suprême Azalea; Messrs. Osborn, a small group of plants; Messrs. Rollisson, two fine plants of Chamærops; Mr. James, a group of Cinerarias; Mr. William Paul, Waltham Cross, splendid stands of cut blooms of Roses, including very large ones of Madame Decour, Paul Néron, Marquise de Castellane, and several of Maréchal Niel 6 inches in diameter. Messrs. Kelway & Son, Langport, Somerset, had a fine box of this variety, containing sixty blooms, and from the same plant we understand no less than 120 flowers were sent to Covent Garden on the day of the Show. Mr. Ware, of Tottenham, in addition to stands of Pansies, contributed a large and very fine collection of spring-flowering plants; Mr. Hooper, Widcombe Hill, Bath, stands of Pansies; Mr. Turner, Slough, a fine collection of Tricolor Pelargoniums and Auriculas; and Mr. Wimsett, Ashburnham Park Nursery, Chelsea, a group of Palms and fine-foliaged plants. Several extra prizes were awarded for the above exhibitions, for which we refer our readers to the published prize list.

Prizes were offered for collections of forced vegetables, but no award was made. Mr. Clarke, gardener to J. C. Brown, Esq., Horsham, and Mr. Batters, gardener to J. W. Fleming, Esq., Chilworth Manor, Romsey, sent small collections.

Fruit Committee.—G. F. Wilson, Esq., F.R.S., in the chair. Mr. Bland, gardener to Lord Kilmorey, exhibited Mushrooms and Mushroom spawn. The former were very fine specimens, and were cut from a bed which has been five months in bearing, and the spawn is Mr. Bland's own manufacture. The Mushrooms were awarded a cultural commendation. Mr. Picirillo, 41, Wigmore Street, Cavendish Square, sent fruit of Naples Lemons and Bergamot Limes. The former were large and handsome, and the latter sweet and agreeable in flavour. A letter of thanks was awarded to this exhibitor. Mr. W. Milleri, Worksop Manor, sent fruit of selected Keens' Seedling Strawberries. Mr. H. Knight, gardener to the Duke of Roxburghe, Floors, sent a fine large specimen of Castle Kennedy Fig, which, though handsome, was quite void of flavour. Mr. Baldwin, gardener to B. Drew, Esq., Streatham, sent a dish of new Black Hamburgh Grapes. J. R. Fernyhough, Esq., sent a plant of the Avocado Pear, Persea gratissima, growing out of the fruit which had been placed in a Hyacinth glass filled with water in his drawing-room.

Floral Committee.—W. Marshall, Esq., in the chair. Messrs. Veitch had a first-class certificate for Croton lacteum, a handsome species with broad leaves and cream-colour variegation; from the same firm came Acer polymorphum marmoratum with pale yellow leaves veined with green; Gravesia hertolonioides with handsome silver-veined leaves; and Eriopsis rutidebulbon seen before. Mr. Linden, of Brussels, sent several Odontoglossums, including a pretty variety of Pescatorei. From Mr. Hubberstey, gardener to C. Wrigley, Esq., Bury, Lancashire, came a magnificent specimen of Odontoglossum Phalænopsis with upwards of sixty flowers. This, we believe, was recommended to the Council for a medal. Mr. Williams, Holloway, sent Rhopala elegantissima with dark green foliage, a very ornamental species, which received a first-class certificate, likewise two or three other plants. Messrs. Rollisson had a first-class certificate for Erica Neitneriana, noticed last week at page 307; together with this they sent three Gloxinias. Messrs. Ivery & Son, of Dorking, exhibited several seedling Ferns, and took a first-class certificate for Polystichum angulare confluens variegatum, with slightly yellow variegation. Messrs. Ivery had a like award for a pretty little dark-leaved Ivy, called Hedera conglomerata.

M. Van Houtte, of Ghent, who exhibited a numerous group of seedling Azaleas, took first-class certificates for J. G. Veitch, Mdlle. Marie Van Houtte, semi-double white, flaked with salmon; S. Rucker, pink, bordered with white, nicely painted; and a certificate of the second class for Comtesse Eugénie de Kercheve. Mr. Brown, Elmdon Hall Gardens, also sent seedling Azaleas; Mr. Turner a collection of new Alpine Auriculas, of which Col. Scott, almost black, was fine both in outline and colour; and Messrs. Osborn, Fulham, a Statice very like brassicæfolia, and a small-leaved Anthurium Scherzerianum called Osborni, which, small as the leaves were, had broad-spathed flowers; but elsewhere it has been found that small-leaved plants of this species will do the same thing. Messrs. Barr & Sugden again contributed a fine collection of Narcissus, also a plant of Lilium Thompsonianum.

NOTES UPON FERNS.—No. 2.

In resuming this subject in answer to your correspondent "Pteris," it will be necessary to state that the plants known to amateurs as Ferns, and to the majority of our rural population as Brakes, or Bracken, constitute the highest order of that division of the vegetable kingdom named by Linnæus Cryptogamia, signifying concealed or hidden flowers, and popularly they are known as flowerless plants. Ferns are furnished with roots, stem, branches, and leaves; and as amongst phænogamous plants, so amongst these, we find some scandent species which climb the trunks of other trees. Some form stout arborescent stems of their own; whilst others form low-growing beautiful undershrubs, the smaller kinds often clothing the face of rocks with their refreshing verdure. Another section are deciduous, and annually lose the whole of their leaves, during which time they remain perfectly dormant.

From the above brief outline it will be evident that the stems and other organs of the Fern tribe must vary considerably both in size and appearance, and a few details of their various organs will be necessary in order to carry out the views, or answer the queries of "Pteris."

First, then, about the stem. The Australian tree Fern, Dicksonia antarctica, is said in its native gullies to grow to immense proportions; indeed I have seen it as cultivated in English conservatories with superb trunks measuring 10 or 12 feet in height, and upwards of 4 feet in circumference. The Silver Tree Fern of New Zealand also, and Dicksonia squarrosa from the same country, in comparison with the denizens of our own islands that belong to this order, are indeed veritable giants. Tree Ferns are not by any means confined to the antarctic regions, or, more properly speaking, to the Australian continent and its neighbouring islands, for they exist in the greatest profusion throughout the tropics; but it would appear from our observation that these arborescent kinds from tropical countries are invariably more slender than those from the temperate regions already named.

Taking leave of the Ferns with arborescent stems I proceed to examine plants of smaller size, which will be more familiar to my readers because they are of sufficiently small proportions to be grown even in a Wardian case for the embellishment of the drawing-room or boudoir. Amongst these we find species

with an erect caudex (stem), but which do not in any way assume the proportions of a trunk. This form is well represented in Aspidium trifoliatum. Such a mode of growth is called fasciculate and erect. When the growth is fasciculate, but bent down instead of standing erect, it is then called fasciculate and decumbent; an example of this may be readily found in the genus Asplenium. Then we have tufted (cæspitose) vernation or growth, which is brought about by the growth of offsets, which spread out and root all round the original crown, thus forming a dense tuft.

Another modification of the stem is the rhizome, which is a fleshy prostrate stem, the form of which may be divided into two sections, the first example being clothed more or less densely with chaffy scales. These invariably creep *upon* the surface, and in the language of the pteridologist are called epigæous squamose rhizomes. A familiar example of this mode of growth will be found in the Haresfoot Fern, Davallia canariensis.

The second form of rhizome is quite destitute of scales, and is always to be found below instead of upon the surface of the soil. It is called a hypogæous rhizome, and may be found in such plants as Pteris esculenta and P. aquilina.

There is yet another modification of the stem which it will be necessary to advert to, and this is called a sarmentum. It differs from the epigæous rhizome, inasmuch as its point of growth is seldom, if ever, in advance of the developed fronds, which is always the case with the former. The sarmentum may be either epigæous or hypogæous.

The various modes of growth which the stem assumes have also been classified by pteridologists. Thus, the manner in which the Tree Ferns produce their fronds is called fasciculate; when the fronds are produced one after the other they are called uniserial; when placed wide apart they are said to be distant; and if somewhat close, contiguous. Again, when the fronds are attached to the stem by a joint, and fall clean away, they are said to be articulate; whilst if, on the contrary, the fronds are not jointed to the stem, and do not fall clean away, leaving a distinct mark showing where they have been, then they are said to be adherent.—Experto Crede.

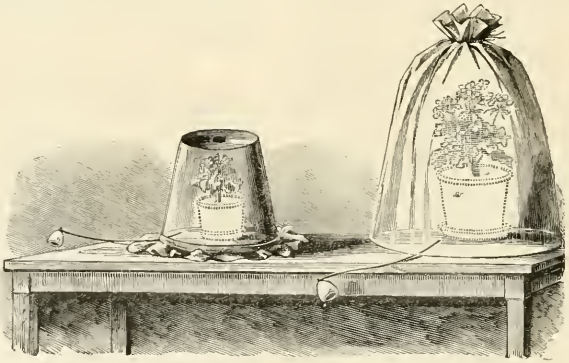
THE PRIMROSE.

In Mr. Robson's interesting article on Primroses (page 306), he speaks of planting out the greenhouse species, Primula denticulata; he means, I think, Primula erosa, often incorrectly called and sold as P. denticulata. The true P. denticulata has no powder on its stem or leaves, has more toothed leaves and larger flowers than P. erosa. Both have flowered well here on rootwork. We find Primula cortusoides amœna does best in sheltered places with a north aspect; with an east a few degrees of frost purpled the flowers.—George F. Wilson, *Weybridge Heath.*

[The Primula genus is very abundant in flowers this year. We recently visited the garden of a very old florist who raises thousands of seedlings annually. He is quite an original, and divides all the species into two groups—"them as is single-flowered, and them as is bunch-flowered." We have seen some unusual sports this spring—a Primrose (Primula vulgaris) with umbels of large pale yellow flowers was shown to us within a few hours of this being printed.—Eds.]

FUMIGATING.

About this time or a little later we often hear from amateurs, "I have a plant covered with fly." My mode of fumigating a single plant is shown in the drawing. The tobacco smoke is to be blown in from a pipe. The larger plant is covered with a



sheet of newspaper tied at the top and pasted together at the joining. The small plant is covered with a garden pot placed on a wet cloth, and the hole at the top is covered with a wet rag. The tobacco is placed in a common tobacco pipe.—H. G.

VIOLETS.

I think a paragraph on these flowers may be interesting to some of your readers. Of the single varieties I, of course, prefer the Giant or Czar to any other. Many of your correspondents consider the two as identical. There is certainly very little difference, but I am almost inclined to think that the Giant, which I believe was introduced by Mr. Stedman some years before the appearance of the Czar, is the stronger grower of the two. In other points they are about equal. The Giant is a very strong-growing, free-blooming, and large-flowered sort, and is one that is sure to give satisfaction to every grower of the Violet. Next after the Giant or Czar I think I should place Russian superba, a fine new variety, but not quite so strong a grower as the preceding; it is, however, a profuse bloomer. The flowers are very dark in colour, large, very sweet, and it is a good winter bloomer. Next after this —perhaps equal to it—I should name Devoniensis, which is an exceedingly good autumn and winter bloomer, although I have not yet found it a free grower here. Then there is the London, which I would recommend as being the freest-growing and the most profuse-blooming of all Violets, but the blooms are rather small. The Russian and the Scotch Blue are also good varieties, and the White Russian is useful where white Violets are desired.

Whilst on the subject of single Violets, which I certainly prefer to the double ones, I must remark that I hope to see great improvements made in the Violet in the course of a few years. By raising from seed I believe it is capable of improvement in shape, in size, and in other points besides these. I have raised a few seedlings from the Giant, and I must say that the result has been so far gratifying to me. They have

shown an inclination to sport a little, and there are one or two amongst them which are certainly better in substance than the Giant. The petals are less crumpled, and approach more to a circular shape. I have one which I think very highly of. It is of a beautiful light blue colour with a prominent white eye.

Of the double varieties I think the best are the Tree, which is very hardy, and a great bloomer both in winter and spring; the Double Russian, also a fine blue sort; the double white Compacta, and the Neapolitan. The latter I find rather tender out of doors. Double Pink is curious but not pretty, and is tender. The King and The Queen are certainly fine sorts, and very free in growth and in bloom, but with me they do not surpass, if indeed they equal, those named above.—GEORGE W. BOOTHBY.

BASKET PLANTS FOR THE STOVE.—No. 2.

HOYA.

A GENUS of Asclepiadaceæ, containing some of the most beautiful plants which are grown in our stoves. The majority of them are strong-growing climbers, and therefore cannot be included in this article, but the two species here named form such magnificent objects when grown in baskets, that, although by no means new plants, I would fain induce my readers to pay them more attention than, unfortunately, is usually accorded them.

These plants are easily grown, and make excellent companions for the Æschynanthus treated of at page 227. They should be planted in a mixture of about equal parts of loam and peat, to which must be added a good quantity of sand and a little well-decomposed manure; if, in addition, a little chopped sphagnum moss and a few lumps of charcoal be also mixed with the soil they will serve to keep it open, and be of great advantage to the plants. In the summer months treat them to a liberal supply of water and strong moist heat, and the return will be vigorous growth and an abundant crop of wax-like blossoms. After these have fallen the old footstalks should not be removed, for towards autumn they will produce another crop of blooms, which will then be doubly valuable on account of their being so admirably adapted for bouquet-making, and being also so useful for the ornamentation of a lady's hair. During the winter months, however, it must be borne in mind that much less water should be given, but at the same time care must be taken that the plants are not allowed to shrivel, otherwise the specimen will be much injured, if not killed.

H. bella.—This lovely plant is furnished with small, opposite, obtuse, somewhat fleshy, dark green leaves. The exquisitely charming flowers are borne in clusters or umbels, which proceed from the axils of the leaves, and owing to their fleshy substance they last a long time in full beauty. The corolla is spreading and pure soft waxy white, with, in the centre, a star-like corona of rosy crimson, affording an agreeable and pleasing contrast. This plant is frequently grown in pots, and I have seen it trained upon a balloon-shaped trellis; but to view the exquisite umbels of bloom in the greatest perfection it must be grown in a basket, and suspended just above the eye. It is a native of Moulmein.

H. Paxtoniana.—The present species has two claims upon our attention—namely, first, its chaste beauty, and secondly, it has special interest as being a living reminder of that great gardener Sir Joseph Paxton, a worthy plant dedicated to the memory of a most worthy man. Like H. bella, this plant should be grown in a basket; it is more slender in its growth than Hoya bella. The leaves are opposite, acuminate, and pale green in colour. The umbels of flowers are produced from the axils, the corolla being spreading and of a clear waxy white, with the star-like corona of a soft cerise. The two species will produce a double crop of blooms in a season. It is a native of Java.

Agalmyla staminea.

AGALMYLA STAMINEA.

This belongs to the Cyrtandræ section of the order Gesneraceæ, and is, I believe, the only species of the genus in cultivation; its beauty, however, is quite sufficient to make us hope that others may be speedily introduced. The various species of this genus which are at present known are all natives of the islands in the Indian seas, where they grow upon the branches of the forest trees; indeed their very name indicates how beautiful they must appear in the woods of these islands, as it is derived from the words *agalma*, an ornament, and *hule*, a forest, literally signifying the ornament of the forest. The plant under consideration is a near relative of the Æschynanthus, and may be treated in a precisely similar manner. It is a robust-growing and spreading plant, with large, oblong-lanceolate, dark green leaves. The flowers are produced in clusters from the axils of the leaves. The fascicles of flowers vary in number from ten to twelve and upwards; the flowers are tubular, upwards of 2 inches long, of a vivid scarlet, with long exserted stamens. This beautiful plant is a native of Java, and is one of the most beautiful stove basket plants which it is possible for the amateur to grow. Its brilliant and ornamental flowers are produced

from the end of May to the end of July, or beginning of August.—Experto Crede.

PLANTS IN BLOOM DURING FEBRUARY IN SOUTH AUSTRALIA.

I generally read with interest the lists of plants in bloom in certain months which appear in your valuable periodical at different times, and thinking that a similar list from the antipodes may not be uninteresting to some of your readers, I append one of those that are now in bloom in my own garden, merely promising that we have had a terribly severe season till within a week or so—hotter than I have known for twenty years, and consequently that many of our best flowers at this season are not just now in bloom.

I have twice before made a similar list at more favourable periods (for this is by no means a florist's month), but did not forward them, fearing that they might not possess sufficient interest generally. However, I shall occasionally repeat it, so as to give your readers some idea of the capabilities of our climate.—South Australian.

Plants in Bloom in the Open Air at Adelaide, South Australia, in February, 1872.

Arduina bispinosa
Abutilons—Duc de Malakoff, Beranger, Souvenir de Arago, Striatum, &c.
Aristolochia sempervirens
Armeria formosa
Aloysia citriodora
Acacia horrida
Bougainvillea glabra
Barleria cristata
Bouvardia triphylla
Campanula pyramidalis
Cyperus alternifolius variegatus
Commelina cœlestis
Coreopsis tinctoria
Coreopsis longipes
Centaurea gymnocarpa
argentea
Cuphea platycentra
Convolvulus mauritanicus
Ceanothus hybridus roseus
Canterbury Bells
Capparis spinosa
Coccoloba platyclada
Canna, various
Datura fastuosa (?)
Dianthus Plumieri
mexicana
Dianthus Heddewigii, &c.
Euphorbia variegata marginata
Bojeri
Escallonia rubra
Echinocactus, sp.
Eriocharidium
Euonymus japonicus
Eccremocarpus scaber
Eucalyptus calophylla
Fuchsia, various
Geraniums—Zonal, single, and double
Gymerium argenteum
Gaillardia grandiflora
Richardsoni
Heliotrope, various
Hollyhocks, various
Helichrysum, vars.
Habrothamnus Hugelii
Hemerocallis fulva
Hibiscus hybridus, various
Rosa-sinensis grandiflora
sinensis speciosus
brasiliensis
flavescens
africanus
Thunbergi
Cameroni
syriacus
Hurrisoui, and others unnamed
Ipomœa Learii
Justicia splendens
Iochroma grandiflora
tubulosa
Jasminum grandiflorum
Ipomœa mexicana alba
Kerria japonica fl.-pl.
Lonicera sinensis
Libium superciosum punctatum rubrum
Linum sibiricum
Lantanas, various
Lophospermum Hendersoni
Maurandya, various
Mignonette
Marvel of Peru, various
Mandevilla suaveolens
Nierembergia frutescens
Nerium variegatum argenteum
double pink
Phlox decussata
Drummondi
Pavonia coccinea
hastata
Plumbago capensis
Larpentæ
Pelargonium peltatum
Pyrethrum album
Poinciana Gilliesii
Petunia, double and single
Pentstemon, various
Portulaca
Polygala Pourtalesii
myrtifolia
Passiflora-edulis
Newmani
Contessa Clara Guiglini
cærulea
alba
Loudoni
Russellia juncea
Rochea falcata
Roses, various
Solanum Capsicastrum
jasminoides
Statice Pickseoni
arborea macrophylla
occidentalis
Smithii
Salvia splendens
coccinea
amabilis
Sollya heterophylla
Snapdragon (Antirrhinum)
Shortia gossipioides
Sprekelia formosa
Swainsonia Osborni
Greyana
Stigmaphyllon cuneiatum
Tournefortia heliotropioides
Tacoma velutina
pulchra
hybrida grandiflora
jasminoides
Thunbergia alata
Tacsonia Mantii
Dr. Wylde, splendid hybrid
Tamarix gallica
Tigridia pavonia
Tritoma Uvaria
Veronica hermesina splendens
variabilis
Vinca alba
rosea
Verbena, various
Vernonia novaboracensis
Webbia cuvarieusis
Zinnia, double and single
Zauschneria californica
Zephyranthes, sp.

The British Gardeners' Mutual and Self-supporting Society.—The members of this Society, whose object is to establish a nursery and home upon co-operative principles, for the purpose of giving employment to gardeners of good character when out of situations, and to render assistance to infirm and aged members, held their first annual meeting in their Committee-room, at the Retreat, Redland, Bristol, on April 10th, Mr. W. Pillinger in the chair. There was a good attendance. Letters expressive of regret at not being able to attend, and urging members to individual exertion in forwarding the objects of the Society, were received and read from representatives of South Wales, Liverpool, Manchester, York, Sheffield, and other districts. The fourth quarterly report was read, and a printed copy presented to each member. It showed that 105 members had joined the Society during the year—not including the two members who emigrated, and the one who has died since its formation—and that there was a balance of £32 6s. 6d. in hand. The fund is raised by the accumulation of 2s. 6d. subscriptions in the form of shares, and twopenny monthly contributions. The following gardeners were appointed officers and members of the Society's Committee for the ensuing year—viz., Mr. W. Pillinger, President; Mr. J. Butler, Vice-President; Mr. T. Lea, Treasurer; Mr. W. H. Smith, Honorary Secretary.

PORTRAITS OF PLANTS, FLOWERS, AND FRUITS.

Todea barbara (Todea of Barbary). *Nat. ord.*, Filices. *Linn. arr.*, Filices Polypodiaceæ.—This plant, called at Kew the Australian Fern Royal, was sent over to England by Baron Von Mueller from the Victorian Alps in 1869. It is of very large size, weighing at the time of its arrival, and when it had not a single frond, 15 cwt. It has now 160 fronds, each 5 feet in length, arising from thirty crowns, and an immense caudex. It is a native of south and east Australia, Tasmania, and of southern Africa, but not of Barbary, as the name which Linnæus bestowed on it would lead us to suppose.—(*Bot. Mag.*, *t.* 5954.)

Senecio pulcher (Handsome Senecio). *Nat. ord.*, Compositæ. *Linn. arr.*, Syngenesia superflua.—A very robust annual, from 1 to 4 feet high, with leaves from 4 to 10 inches long. Flower a bright red, purple in the ray, yellow in the disk. It is a native of South America, and was discovered in Brazil forty years ago at the base of the Sugar-Loaf Mountain in the south of that country.—(*Ibid.*, *t.* 5959.)

Corynostylis Hybanthus. *Nat. ord.*, Violaceæ. *Linn. arr.*, Pentandria Monogynia.—A stove shrub, imported from Para, which, although closely allied to the Violaceæ, in habit and form of its flower more resembles the racemose Indian Balsams. Leaves alternate, from 2 to 5 inches long, elliptic-oblong, bright grassy green, with the lower side rather paler than the upper. Flowers arranged in axillary sub-corymbose racemes, pure white and odorous.—(*Ibid.*, *t.* 5960.)

Bolbophyllum lemniscatum (Ribboned Bolbophyllum). *Nat. ord.*, Orchidaceæ. *Linn. arr.*, Gynandria Monandria.—"Its curious glossy tubercled pseudobulbs, its capillary scape with the long inflated upper sheath, its pendulous spike of glistening minute flowers, and above all, its slender appendages that hang one from the back of each sepal, and which are as curious in structure as beautiful in colouring, together seem to mark it as the type of a new genus. The elaborate structure of the appendages of the sepals deserves especial notice. Each consists of a narrow club-shaped very flaccid body, three to four times as long as the flower, and is gradually narrowed into a filiform pedicel. On a superficial examination it appears to be 10-sided, but on a transverse section is proved to consist of a capillary axis, from which radiate ten longitudinal crenate undulate plates, of equal breadth and extreme delicacy. The whole organ is not more than one-sixth to one-fourth of an inch long, of a brilliant red-purple colour transversely banded with white. These appendages suggested the very appropriate name of lemniscatum (from *lemniscus*, a coloured ribbon). Of their possible use I can form no conception; they fall off as the flower expands."—(*Ibid.*, *t.* 5961.)

Masdevallia ignea (Fiery Masdevallia). *Nat. ord.*, Orchidaceæ. *Linn. arr.*, Gynandria Monandria.—Nearly allied to M. Veitchiana, and of as bright a colour, but differing in the form of the leaf, which is in the shape of the sepals, and of their disposition and curvature. It is a native of New Grenada. "The colour, though not so deep as that of the Veitchiana, is quite as vivid, and more resembles that of cinnabar, or, as Reichenbach says, a 'dazzling scarlet mixed with orange-scarlet, too dazzling to look at long.' It thus suggests a transition from the red heat of Veitchiana to a white heat. As in the latter species, this lustre—or water, as a jeweller would term it—is due to the refractive power of the fluid contained in the superficial bladdery cells of the sepals, and is

perhaps unsurpassed for brilliancy in the vegetable kingdom." —(*Ibid.*, *t.* 5962.)

Stapelia sororia (Breast-like Stapelia). *Nat. ord.*, Asclepiadieæ. *Linn. arr.*, Pentandria Digynia.—A native of the Cape of Good Hope. Stems 6 to 10 inches high, channelled between the angles, and toothed at intervals of from one-third to two-thirds of an inch. Flower 3 to 4½ inches in diameter. Corolla clothed on the surface and margined with long hairs, composed of five lobes, transversely wrinkled, of a dark vinous purple at the end, and bright orange yellow towards the base. —(*Ibid.*, *t.* 5963.)

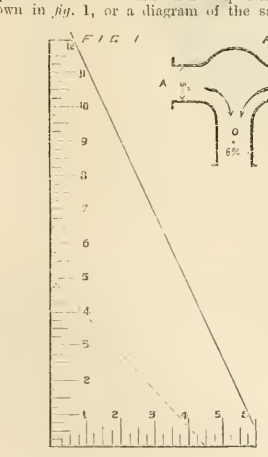
Dipladenia insignis.—This we believe to be "the finest Dipladenia hitherto known, and in this opinion we are not singular, for one of our most experienced plant-growers, to whom flowers were sent in October last, pronounced it to be quite distinct, very fine in colour, and with greater substance than any other he had previously seen, adding that if its constitution and free-flowering habit were equal to those of D. amabilis, it would prove a decided acquisition. The flowers were from 4 to 4½ inches in diameter, of a rich, deep, rosy carmine, as deep on the outer as the inner side of the corolla, the base of the tube being white, the white sharply defined. It is in the substance of the flowers, and in the brilliant colour, that the chief merits of this novelty, as an ornamental plant, are to be found.

"Dipladenia insignis was raised by Mr. S. Fenwick, gardener to John Waterhouse, Esq., of Well Head, Halifax. It is a seedling from D. amabilis, was raised in 1869, and flowered for the first time during the past summer, the plant, though only growing in a 7-inch pot, proving to be very floriferous, and continuing for some weeks in flower. When it comes to be freely grown, and well established, we may expect to see it even finer."—(*Florist and Pomologist*, 3 s., v., 73.)

THE PROPORTIONS OF PIPES.

[The following will be useful for gardeners who require to heat two houses from one boiler.]

Annexed is a sketch of a handy little contrivance designed by Mr. G. Cockburn, of Glasgow, for ascertaining the diameter of a pipe, &c., having a sectional area equal to that of two other pipes, or *vice versâ*. The instrument consists simply of a piece of wood or cardboard shaped like a set square, as shown in *fig.* 1, or a diagram of the same form drawn on



paper, and divided out along the two edges, which are at right angles to each other, the divisions being taken to represent inches, feet, or yards, &c., according to the kind of work for which the instrument is used. When employed for determining the equivalent diameters of pipes or bars, inch subdivisions are generally found most convenient.

The mode of using the instrument will be readily understood from an example. Suppose, for instance, that two pipes, A and B (*fig.* 2), respectively 5 inches and 4½ inches in diameter, deliver into a third pipe, D, and it be required to find the proper diameter for the latter pipe. Then from 5 on the scale of one of the divided edges to 4½ on the other draw a line, as shown in *fig.* 1, and the length of this line measured with the same scale as that to which the edges are divided will be the diameter of pipe required—in this case 6¾ inches. On the other hand, if a pipe, D, 6¾ inches in diameter, be delivered into a pipe, A, 5 inches in diameter, and it was required to know what other size of pipe, B, should also be supplied, all that would be necessary would be to take the division point 5 on one edge as a centre, and with 6¾ inches as a radius, describe an arc cutting the other divided edge. The point at which the latter edge was cut by this arc would show the diameter of pipe required.

Besides being useful for determining the diameters of pipes or circles of equivalent areas, the instrument is also available for determining the sides of equivalent squares, while by a little contrivance it can be made available for determining the diameter of a pipe or bar having a sectional area equal to the aggregate sectional areas of any number of other pipes or bars of which the diameters are known. To use it for this purpose it is only necessary—first, to determine by its aid the diameter of pipe or bar equivalent to any two of the whole number, and next to ascertain the equivalent of the diameter thus ascertained, and that of a third pipe or bar, and so on. The arrangement of the instrument is, of course, founded on the fact that the areas of squares and circles increase as the squares of their sides and diameters respectively, and that the square of the hypothenuse of a right-angled triangle is equal to the sum of the squares of its two sides.—(*English Mechanic and World of Science.*)

REVIEW.

The Natural History of the Year. By the late Bernard Bolingbroke Woodward, B.A. Revised Edition. London: S. W. Partridge & Co.

In walking round the Academy "doing the pictures," according to the talk of the day, how tired we become of likenesses of mayors and aldermen, M.P.'s, and country gentlemen, all in the stiff dress, the black frock coat usually, of modern life; and what a relief it is to stand before some picture of country life or scene—some "Autumn Gold," or "Sheep-shearing," or "Spring," or "Chill October," or the like. Many gather round such views, and admire and linger, so great a hold has Nature upon us all. The town-living man lingers, and the scene portrayed recalls some such one known to him in former years; and even the one just "in town" for a few weeks loves such pictures better than all the rest, although, or perhaps because, he lives habitually among such in reality. Thackeray, in one of his charming earlier papers, expresses his wish to have his room in London, in which he wrote, hung with landscapes. No stiff formal figures should be there, no likeness of soldier or statesman, but country views —pictures to take him in thought into the hayfield, among the woods, on the breezy heath, or the rich harvest fields, "half-shocked, half-waving in a flood of light." We cannot wonder at such a wish.

Now, in opening the pretty book at the head of this article, such feelings, "hankerings" we may call them, after rural scenes are thoroughly gratified. The pictures, very pretty ones, take the eye into the country, the letterpress takes the mind there. The book reminds us of early friends of ours, the works of Thomas Miller with a dash of William Howitt, and still more, in the descriptions of natural history, of White's "Selborne."

The work is dedicated "To the rising generation throughout the dominions of Her Majesty Queen Victoria," and a book most eminently suited for young people it undoubtedly is. That capital paper in the old "Evenings at Home"—we think that was the title—called "Eyes and no Eyes," did us in our youth much good—taught us to look out for beauties around us and close to us, in the bird hopping near, the Daisy at our feet, the tree above us, the Fungi at its root. So is this prettily illustrated, prettily written book, suited on a larger scale to instruct and please the young by teaching them what to look for, love, and admire in the pages of Nature, as shown to them month after month. There is, too, a very reverent tone about the writer; his book is a kind of commentary upon the words of the Psalmist, "The works of the Lord are great, sought out of all them that have pleasure therein." Mr,

Woodward tells "the story of our life from year to year" as seen in God's world during one and each year.

In the first chapter he informs us of his own first introduction to Nature, when he first began "to love the grass, trees, flowers, and birds." This, strange to say, happened on a winter's day. He says, "I set out for my walk and shivered with cold, but before I had gone far I saw a small kind of grass in ear, and I gathered it, wondering why it had not waited till the sweet spring was come; next I espied the pretty white stars of the Chickweed, and, as I had never noticed it before, I plucked it with as much delight as if I had found a most splendid and fragrant flower; and then saw other flowers, and mosses, and berries black and red. And I listened to the blackbirds and redbreasts in the trees close beside me, and I forgot the cold and everything, except the wonder and the beauty of the world which God was adorning in this way, even in the depth of winter." This extract shows the reverent tone of the work.

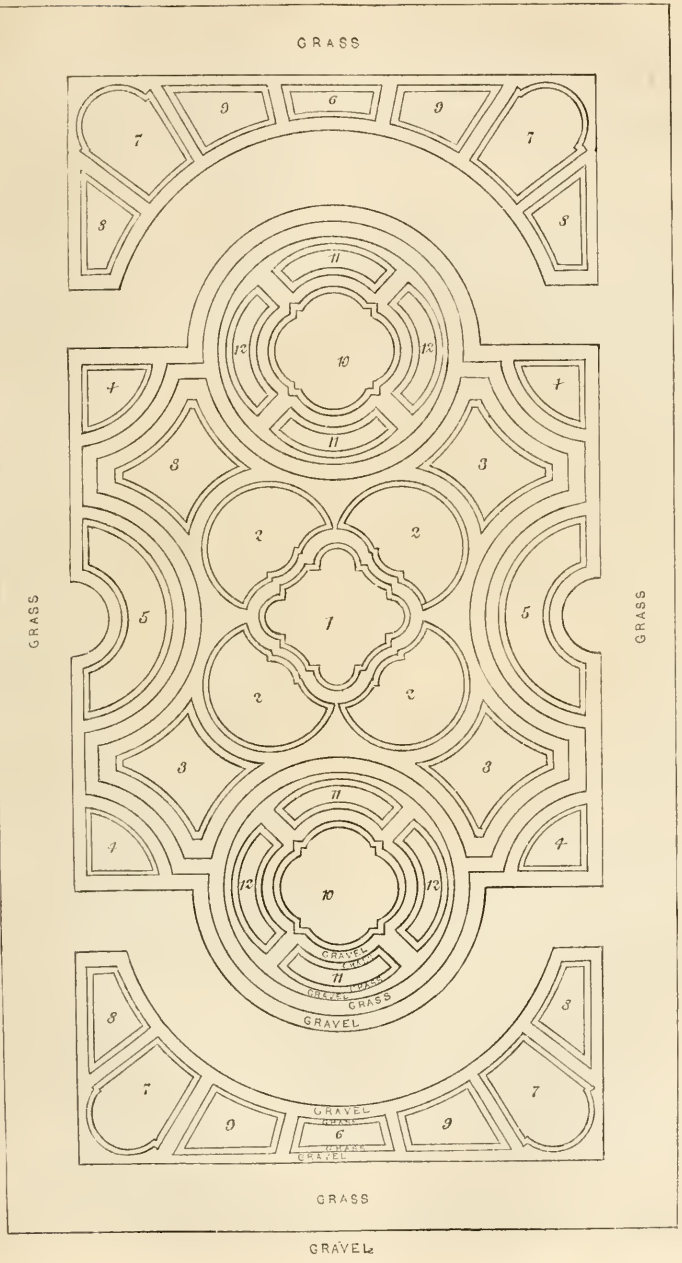
We have a chapter given upon each of the months, with an illustration of each month, one specimen of which we reproduce for the pleasure of our readers, that for July. These are excellent, and perhaps their circular form adds to their beauty. No shape equals a circle; the stars appear to us circular, the moon is so shaped, and no bed on a lawn meets the eye so agreeably as that in the form of a circle. The woodcut for January gives us a group of pollards, with sheep huddling under for protection; that for February a ploughing scene; for March a labourer sowing, and a windy sky above head; that for May gives us a party of children gathering Blackthorn; June, a hay scene; August, gleaners and their surroundings; October, a farmyard, and labourers thatching the ricks, while a broad-backed farmer looks on contentedly; while lastly, that for December pictures snow falling and fallen, while a man is breaking the ice to get water for the cattle. Besides these special monthly pictures there are some dozen or twenty others, all pleasing, each bringing before us some

phase of country life. A country parson (for surely he is one) reading an old quarto in an arbour, with his spaniel at his feet; I doubt whether master or dog knows much about shooting, for nothing of the sportsman is in his face. Then there is another picture of three children being equipped for a walk, and the mother tying the hat-strings of the youngest across the body of master baby who sprawls on her lap. In truth, these woodcuts do one's heart good to look at.

The plan in regard to each month is to describe its characteristics, then its specialities as to birds and flowers—the migration of swallows, the return to us of the summer songsters, are all handled in a devout and yet large-hearted manner. Insects and their habits are noted, specially butterflies in all their gay glory. In each month is given a list of the wild flowers in bloom. Then we are taken from fields to gardens, and taught as this month (April) to note "the white Pear blossom and the delicate pink-and-white Apple blossoms" in our kitchen gardens; while in our flower gardens we may pause and admire "Laburnums 'dropping wells of fire' (better called here, in Wilts, Golden-chains), Narcissuses, Anemones, and Stocks, the Wallflower, and the Snowflake, with many more, to make them gay and delightful." Finally, we can fully recommend this pretty, useful, high-toned book as a gift-book to girls and boys.—Wiltshire Rector.

THE FLOWER GARDEN AT EXTON PARK.

Last week we referred to the beautiful new flower garden in front of Exton Hall, and promised to give a representation of it. Unfortunately from its extent, and to afford a just idea of the configuration of the beds, it has been only possible to give one of the two panels composing it. These are separated by a 14-feet walk, and planted alike. The breadth of grass enclosing each panel is 8 feet, and that of the surrounding gravel the same. The whole garden forms a square of 240 feet on



FLOWER GARDEN AT EATON.

1. Scarlet Geranium Punch.
2. Yellow Calceolaria Regia.
3. Scarlet Geranium Mountford's Seedling.
4. White Petunias.
5. Purple King Verbena.
6. Geranium Christine.
7. Scarlet Geranium of sorts.
8. Acaena Lyalli Dwarf.
9. Alternanthera Bijou and Magnolii.
10. Geranium Lord Palmerston edged with Mrs. Pollock.
11. Dark Calceolarias.
12. Verbenas Crimson King and Lord Raglan.

the side, or upwards of an acre. It was designed by Henry Brandling, Esq., of Irton, and laid out by Mr. Smith, the gardener. Marble vases 8 feet high occupy the centres of the beds 10; steps lead up to the terrace in front of the Hall; and along this terrace, as well as on the opposite side of the flower garden, are marble vases 3 feet high. An elegant and costly architectural wall surmounted by a balustrade extends along the east side.

The planting is varied from year to year. We give beneath the engraving that adopted last year, the plants in the corresponding beds on both sides being alike. The panels extend lengthwise on each side of the central walk.

THE CALCOT POLYANTHUSES.

Like the Smithfield Cattle Show and the University Boat Race the Calcot Polyanthuses come but once a-year, and like those other attractions they, too, have their admirers and devotees who can indulge their tastes and find pleasure with less excitement and in greater comfort. Calcot is within a pleasant three-miles walk or drive of the Reading station on the great Bath road, and there the visitor whose delight is in the Polyanthus, the Primrose, and other spring flowers will receive a hearty welcome from Mr. Webb, the hospitable proprietor. We have on former occasions noticed the specialities of the place—from the great English mastiffs which guard the entrance, the birds' nests about the cottage, the family of cats, to the profusion of flowers and fruit with which the ten acres of ground literally teems. But our visit was to Mr. Webb and the Polyanthuses, and both were in their glory, especially the latter. Since last visit we found the extent of ground occupied with one flower much enlarged, and the strain greatly improved. Mr. Webb appears of late to have selected much more closely, and the consequence is that with time the style of flowers he has succeeded in obtaining has greatly advanced; and that the public appreciate this advance is evident from the immense demand Mr. Webb has to supply. Of his Garibaldi varieties the whole of the flowering plants have been sold, and the quantity of other sorts distributed must have been enormous. We are not surprised that the taste for these gorgeous flowers of spring should have become so great; it is only necessary to see them in masses like those at Calcot to stimulate the most lethargic.

SHADING CUTTINGS.

As a general rule, the less shading there is in a garden the more robust will the plants be. Soft-leaved and many young fresh-potted plants, however, will feel the effects of bright sun after dull weather, and in their case a sprinkling overhead with the syringe, or, better still, a little shade continued for a moderate length of time, will be much better for them than unnecessarily deluging the roots. It is often necessary to shade cuttings for a few hours about mid-day, but it should not be continued until late in the afternoon. Shade is good, but if unduly prolonged is apt to weaken the plants.

When I used to propagate thousands of plants in spring under glass, I rooted cuttings more quickly, and got sturdier and more robust plants, that required but a modicum of hardening-off, without any shading at all. The plan adopted, however, required more constant attention than the simple mode of shading. Two things were necessary to success. First, the cuttings were placed at such a distance from the glass, say 20 to 30 inches, that the rays of light were somewhat diffused before reaching them. I have several times alluded to this idea, and on ransacking my memory, I rather think I am indebted for it, and many others through me, to my old friend, Mr. Caie, who did so much for grouped flower gardens when he lived at Bedford Lodge, Kensington, and went from thence to superintend the Duke of Argyll's gardens at Inverary. My old friend and worthy coadjutor, Mr. Keane, knows well what an impetus was given to grouped flower gardens by Mr. Caie, and what an influence he exercised on easy rapid modes of propagating by cuttings, not by scores, but by thousands. The placing the cuttings at a distance from the glass, so that the rays of heat and light should be diffused before reaching them, I believe, as stated above, I owe to Mr. Caie; and besides Mr. Keane, I believe there are a few who are still with us, as Mr. Judd and Mr. Ayres, who would bear me out in my statement. Simple though the matter seems, a principle in propagating by cuttings was thus involved. When the cuttings were placed at a distance from the glass they had direct, though subdued and reflected, light, and shading being but little required, the cuttings rooted more quickly, were more robust and stubby, and were not drawn up at the tops, as they are so likely to be when much shading is used. The other practical detail, as doing pretty well away with shading, I believe I owe to myself, and that is what I may call dewing the cuttings all over several times in a sunny day. Of course, when the leaves of a cutting get dry, and a bright though diffused light beats on them, the leaves will flag and look distressed; but if the place is kept moist, and the leaves are dewed over, they are forced to absorb as well as transpire, and will in the above circumstances stand a fierce sun uninjured. Of all syringes I like Reid's and Warner's best. The fine rose would be just the thing for the inexperienced. I prefer for every purpose the jet-nozzle, with which I can send water with the strength of a water-engine; and merely by putting the finger or thumb across the opening; a little practice enables one to regulate the discharge, so as to resemble a misty vapour, and that is what I call dewing with the syringe.

So long as the leaves of cuttings are bathed in this moisture the fiercest sun has no effect upon them. The sun, of course, dries up the moisture, but then it comes from the outside, not the inside of the cutting. In sudden changes a little shading may be required, but in general circumstances, where cuttings are propagated by thousands without bell-glasses, &c., a skiff from the syringe does away with the necessity of shading, which always disposes a cutting to grow "leggy" and spindle upwards. I have often made half a gallon of water thoroughly dew over some twelve to twenty lights of cuttings. When the sun was very powerful I would even sprinkle the outside of the glass. Of course, do not let me lead any of my readers into a blunder. The sprinkling-no-shading system involves the idea of constant attendance. Where this attendance cannot be given, then the shading of cuttings must be resorted to. All I want to impress on the minds of beginners and amateurs is simply this, that the more shading there is the greater will be the weakening of the plants' constitution. Just as an example, I may mention that our bedding Calceolaria cuttings were inserted towards the end of October. They never had the slightest shade. In sunny mornings they were dewed, as stated above, about ten o'clock, and if the day were bright the process was repeated once or twice. During the sunshiny part of the day the glasses were kept close, no air in general then being given unless the weather was dark and dull; but all night through, when there was no chance of frost, the lights were tilted up at back from a quarter to half an inch. Those who have not tried it would be amazed to find how this air at night invigorates a cutting, and enables it to stand the sun of the following day. What I want to impress is just this, that shade and heat will draw plants and cuttings, but direct sunlight will not do so, and therefore the more sunlight cuttings and plants will stand the more robust they will be. It is quite possible to shade plants until you make them very tender and unusually liable to troubles. With tender plants under glass, the time when they want a little shading is just after a week or a fortnight of dull weather when the sun comes out for a day or two.

Temporary shading is often required, chiefly on sudden changes of the weather. For this purpose nothing is better than light calico. For cheapness nothing equals water with a little whitening in it—merely enough to colour it. For Ferns, &c., I prefer shading with milk and the smallest admixture of whitening. It may be put on the glass very thinly, and if you use one brush for the mixture and a dry brush to daub it, you may make it look like ground glass. A little of this should be put on during a dry sunny day to subdue the glare, except where much shade is wanted. I have often used such a mixture in April, and let it remain until October, as no rains wash it off; and when the light was wanted unobscured have damped the glass and then washed it off. For temporary purposes water merely coloured with whitening does very well laid on quickly with the syringe. This can be swept off by a hair broom when it is necessary. The objection to whitening a roof in this way is, that should you use the water coming off the roof it is sure to be coloured.—R. Fish.

WILD FLOWERS IN BLOOM AROUND LIVERPOOL AND BIRKENHEAD.

My time is so fully occupied that I did not take notes before the 11th of February. My list, therefore, will not be exactly correct as to the time of first flowering, as my observations

have been limited to just around Liverpool and Birkenhead, whereas a little further inland, in more sheltered situations, the plants may have put forth their blossoms earlier in the season. Last year, up to the 1st of March, not more than three or four plants were to be seen in flower in this neighbourhood; but this year quite a goodly number gladdened the eye in what, as a rule, is the windy and dry month of March.

I annex a note of the plants I observed in bloom in the neighbourhood of Abergele, Denbighshire, whilst there for a day on the 29th of March.—Robert Brown.

Feb.	11.	Senecio vulgaris	
		Poa annua	
		Bellis perennis	
		Tussilago Farfara	
		Capsella Bursa-pastoris	
		Stellaria media	
		Chrysanthemum inodorum	
		Cerastium triviale	
		Ulex europæus	
	18.	Veronica agrestis	
		Euphorbia Helioscopia	
		Anagallis arvensis	
		Lamium incisum	
		Æthusa Cynapium	
	25.	Veronica hederæfolia	
		Brassica polymorpha	
March	3.	Taraxacum officinale	
		Cardamine hirsuta	
	9.	Chrysosplenium oppositifolium	
		Potentilla Fragariastrum	
		Adoxa Moschatellina	
		Ranunculus Ficaria	
		Stachys arvensis	
		Euphorbia Peplis	
	16.	Viola arvensis	
March	16.	Spergula arvensis	
		Alchemilla arvensis	
		Lamium purpureum	
		Eriophorum angustifolium	
		Alopecurus pratensis	
		Luzula campestris	
		pilosa	
		Anemone nemorosa	
		Primula vulgaris	
		Hedera Helix	
		Draba verna	
		Corylus Avellana	
	17.	Plantago lanceolata	
		Rumex Acetosella	
		Geranium molle	
	24.	Prunus spinosa	
		Saxifraga tridactylites	
		Stellaria Holostea	
		Lychnis diurna	
	24.	Arabis Thaliana	
		Stellaria graminea	
April	6.	Primula caulescens	
		Erysimum Alliaria	
		Prunus institia	
	7.	Equisetum arvense	

Plants in Flower near Abergele, March 29th.

Veronica hederæfolia	Anthriscus sylvestris
Taraxacum officinale	Stellaria media
Brassica polymorpha	Sonchus oleraceus
Plantago lanceolata	Bellis perennis
Senecio vulgaris	Tussilago Farfara
Poa annua	Cerastium glomeratum
Euphorbia Paralias	Geranium molle
Chrysanthemum inodorum	Cochlearia officinalis
Cardamine hirsuta	Capsella Bursa-pastoris
Primula veris	Luzula campestris
Lamium purpureum	Medicago lupulina
Ranunculus Ficaria	Prunus spinosa
Hedera Helix	Draba verna
Saxifraga tridactylites	Ulex europæus
Potentilla Fragariastrum	Cerastium triviale
Nepeta Glechoma	Adoxa Moschatellina
Veronica agrestis	Viola sylvatica
Geranium Robertianum	Ribes Grossularia
Alchemilla arvensis	Corylus Avellana
Mercurialis perennis	Ulmus campestris
Primula vulgaris	Arenaria trinervis
Viola arvensis	Chrysosplenium oppositifolium
Lamium incisum	Stellaria Holostea
Anemone nemorosa	Ranunculus auricomus
Cardamine pratensis	Caltha palustris
Euphorbia Helioscopia	Ranunculus repens

GREENHOUSE PLANTS.—No. 9.

Epacris.—This is a genus of winter and early-spring-flowering plants, very desirable for decorative purposes and for cut flowers; those of the Epacris will bear a journey of three hundred miles better than many others. The plants are of easy culture, requiring only a light airy house for their growth. They are not half so apt to die off as some would lead us to believe. My accommodation for hardwooded plants is not great; in fact all the subjects that I have included, or shall include, under the head of greenhouse plants are grown in an ordinary house, light and well ventilated, with the assistance of a few pits. I consider the aid of pits essential for furnishing a greenhouse or conservatory.

I will presume that the plants are obtained in 4½ or 6-inch pots during March or April, or in September. At the latter period, of course, we secure them in bloom the first season. Their flowering will be over by the middle of April; they should then be pruned and carefully watered for a time, or until they are growing freely. I usually remove my Epacrises to a pit after pruning. When the bloom is past I remove all the decayed flowers and any seed-vessels, and cut back the strong shoots to within 2 inches of their origin from the two-year-old wood, but the small twiggy shoots of not more than a couple of inches in length are not interfered with. Shoots of this description ought to be encouraged to as great an extent as possible by checking the growth of the strong shoots by frequent stopping.

When removed to the pit—say at the end of April—the plants are kept just moist, but a good supply of water is afforded before they are affected by dryness. Any potting is best done when the shoots are about an inch long. Turning the plants out of the pots, remove the drainage carefully, and loosen the sides of the ball with a pointed piece of wood. The pots should be well drained to one-fourth of their depth; place a large crock over the hole, then some rather large pieces, and finish off with small. Over the drainage I consider half an inch of charcoal that will pass through a three-quarter-inch, and not a quarter-inch, sieve are excellent. The soil may consist of three parts sandy fibrous brown peat chopped up very small (the roots and stems of the heather picked out), and one part of light very turfy loam, with half a part of charcoal broken to pass through a half-inch sieve, and a like proportion of silver sand. Place enough in the pot to bring the collar of the plant level with the rim of the pot, put the compost round the ball, ram it pretty tightly with a piece of lath, and in this way bring it up to within half an inch of the rim. Large shifts are not good. A pot 1 to 1½ inch larger than that in which the plant has been previously growing is sufficient. I finish off with a dashing of silver sand on the surface.

Water carefully after repotting, and take care that the centre do not become dry, but if the plants are deluged with water they will soon appear sickly and die off. When the roots are pushing freely in the fresh soil water liberally, but without rendering the soil sodden.

In Epacris culture no stakes nor ties are wanted, but stop the strong shoots when they have grown 3 inches, and repeat the stopping whenever the shoots attain this length until August; then leave it off, and in October, if there are any young shoots longer than 6 inches, stop them. This will keep the plants very compact, and they will have none of those long straggling shoots that flower at the base and for a great extent at the end are bare of bloom. I even stop such irregular growth during the winter or blooming season. It throws more vigour into the little stubby shoots, which are mostly spikes of bloom.

The plants are kept in the pits without heat from April until the middle or end of September, and have abundance of air, though for a fortnight or three weeks they are kept rather close. They are not exposed to the external air at any time. In this way they make very firm wood, brittle as glass, and flower remarkably well. I do not advocate placing them in heat to make fresh growth, nor keeping them close at any time. They thrive better in pits than in houses in summer—I think from the former having more moisture. In the house they have a light and airy position, and come into bloom in November or December, and continue flowering till April in a temperature of 40° to 45° from fire heat.

In watering Epacrises care should be taken not to pour the water directly on the stems of the plants, but just within the rim, for when it is poured on near the stem, there being few or no fibres there to take it up, it destroys the bark, and the plants die off at the neck.

A few really good kinds are—

Eclipse, tube vermilion, pure white lips, finely recurved. It is one of the finest.
Devoniana, bright crimson tube, with paler-tinted lips. Fine.
Hyacinthiflora, bright carmine tube and rose lips. One of the best.
Carminata, bright carmine. Good.
Carnea, flesh-coloured tube, with paler-tinted lips.
The Bride, pure white. Fine.
Onosmæflora, pure white. Extra, but late.
Delicata, blush, changing to white. Very good.
Limata, rose tube, and pale blush lips.
Miniata splendens, vermilion tube, and white lips. Fine.
Impressa, crimson tube, and white lips.
Multiflora, crimson and white.
Ardentissima, crimson.
Alba odorata, pure white and sweet-scented. Large and good.
Coccinea, scarlet.

I consider the Epacris the most useful of all winter and early-spring-flowering plants.—G. Abbey.

ROYAL HORTICULTURAL SOCIETY'S BIRMINGHAM EXHIBITION.

A sensible letter in the Journal of the 4th inst., on the subject of horticultural buildings to be exhibited for competition at Birmingham in June, induces me to venture upon a few suggestions, for the writer declares himself puzzled as to what is to be the criterion of excellence. The object of the

prizes offered appears to be improvement in the science of horticulture; surely, then, the first consideration should be utility—that is, a house constructed for doing the greatest amount of work in the best manner with the smallest amount of labour, composed of the best materials and workmanship, with a view to durability. Secondly, novelty, so far only as it conduces to the above. Thirdly, cheapness in proportion to the work done, and goodness of material used. If ornamentation and elegance of design are to be the criterion of excellence, the prize becomes one for taste and the longest pocket only, and has little to do with horticulture *per se*. If, on the other hand, cheapness is to be the sole criterion, the worst house gets the prize. Like the race, however, in which the last donkey wins, everyone should in this case be compelled to build his neighbour's house; this might save us from these tumble-down erections. I trust, however, that the Council of the Royal Horticultural Society will not leave the public long in the dark on this point.—QUERY.

VEGETABLE AND FRUIT GROWING.

(*Continued from page* 307.)

NATURE, too, has favoured some districts with climate, to rival which by artificial means is a very uphill and profitless undertaking. Witness the early products of Cornwall and the Channel Islands in the London markets; and the success of the consignments to Glasgow I have already mentioned, and which was no doubt owing to their forestalling the northern growers, perhaps only by a few days, but still showing the advantage of earliness in vegetable-production and the levelling influence of railways.

Around London there are about 12,000 acres devoted to market gardening, and 6000 to orchards intermixed with vegetables and flowers; for although it is not the practice in the cider and perry districts to cultivate the orchard ground, it is in those around London. About 40,000 hands are irregularly employed upon these grounds. On the chalk formations around Mitcham, Carshalton, and Epsom there are about 500 acres devoted to the production of herbs, of which Lavender is the principal. These crops bring in from £20 to £30 an acre annually, although the land on which they grow is not worth more than 30*s.* an acre for any other purpose. The returns from the suburban market gardens are sometimes very large and remunerative, arising more from the enormous crop the land is made to produce than from high prices. In a very productive year prices are usually low, and when there is only a partial crop foreign supplies of fruit and vegetables—all of which come in duty free—keep down the prices. The only protection that native growers now have is, produce abundantly, and keep down the cost of production. Most of their grounds are managed with such consummate skill and industry, that to offer a suggestion would appear almost like presumption, but I will venture to offer one or two.

From excess of ammoniacal manure a good many of their crops, both bulbous and Brassica, run more to top and leaf than to root and head than is profitable. The Brassica tribe are also subject to clubbing, and the surface of the ground to be infested with Chickweed. Now the whole of these drawbacks can be remedied by the application of mineral manures, bone-dust, and superphosphate of lime, and that inexpensive article, gypsum. Last year I tried what the effect would be of London dung applied at the rate of 100 tons an acre on deeply trenched land, on which I planted Bovinia Potatoes, 6 feet apart each way; Long and Globe Mangel, Swedish yellow and white Turnips, white and red Carrots, Parsnips, Cabbages, and Maize, at proportionately wide distances, and the result was a total failure in every case except the Maize, which reached 8 feet in height, and was well podded. On another piece of garden ground, trenched two spits deep, and manured from the farmyard, and dusted at the rate of 5 cwt. per acre with dissolved bones, I dug Bovinia Potatoes at the rate of 2 cwt. per perch, or 16 tons per acre, and some of the tubers weighed 3 lbs. 11 ozs. each, and many of them 2¼ lbs. and 3 lbs. I would also suggest, to economise the valuable orchard grounds around London, which are being gradually curtailed by buildings and railways, that the French espalier system of training fruit trees should be adopted, and likewise dwarf or bush fruit trees planted. The latter in windy places are invaluable, and the fruit can be gathered with little labour or expense.

In forming new orchards and gardens it is not only necessary to select the best species, but to propagate from the most vigorous and productive parent plants. This is as beneficial in the vegetable as in the animal world, for like produces like, and establishes what may be called pedigree plants. Thus, the late Mr. Circuit's celebrated Sovereign Rhubarb arose from one root which he espied in another man's field, and tempted him to sell for the sum that gives the plant its name. Fortunes have been made out of this one root, and one of the largest growers informed me that he began by planting an acre of it at a cost of £120, and found it pay. Rhubarb, like Potatoes, can be propagated from the seed, but, like them also, it may throw twenty kinds of Rhubarb, but not a single duplicate of the parent. It is therefore necessary to propagate from the root to preserve a good sort. If new sorts are required, they must be obtained from the seed, as in the case of Potatoes, and occasionally a hit may be made, as was done in Potatoes by the late Mr. Paterson, of Dundee, when he originated the Victoria and Bovinia. But when we know that this was the main success of forty years' perseverance and some hundreds of experiments, there does not appear much inducement to practical men to be the originators of varieties. In the case of Vines, I have known instances where slips from fruitful parents produced twice the weight of Grapes that were obtained from others of the same variety growing side by side, and under the same treatment. The celebrated Fenton Wheat, which has long been one of the mainstays of Lothian farming, was originated and propagated in this way by the tenant of the farm that gave it its name. Movability of tenant-occupiers is so entirely incompatible with the high manurial condition required in market gardens and the establishment of orchards, that many of the great growers around London are their own landlords.

(To be continued.)

NOTES OF A VISIT TO MESSRS. CARTER & CO.'S SEED FARMS.—No. 1.

THE season, backward as it had been, was somewhat too far advanced when last year we visited the extensive seed farms where Messrs. Carter & Co. raise a large proportion of the seeds which are required to meet their great annual demand; but to those about to sow (and no time could be more favourable than the present), some notes of the numerous varieties of the many species there grown may not be without their utility.

These farms are situated between the Mamingtree station of the Great Eastern Railway and Dedham, and there is another at St. Osyth, eleven miles further south, near the Essex coast. The Jupe's Hill and East House farms, with another smaller one, are about 250 acres in extent, nearly the whole of which is devoted to seed-production. At Jupe's Hill vegetables are principally grown, at East House flowers; and there are few more brilliant spectacles to be met with than the great masses of the latter when caught at perfection—here scarlet, there yellow; here the brightest and purest of blues, there purple, or rose, or a drift of snow-white. At St. Osyth both vegetables and flowers are cultivated, 132 acres being thus occupied; but as on each of the farms some of the subjects grown on one are also to be found on the others, or certain varieties of a plant occur at one place and other varieties of the same plant at another, it will be most convenient to take the whole of the seed grounds collectively and not separately.

Taking flowers first, from the extent of ground, and the number of Tropæolums grown, it was evident that great importance was attached to them, and special attention bestowed upon their selection. The Tom Thumb kinds, of such value for bedding, are grown by the acre—indeed, on one farm alone there were half-acre pieces of Tom Thumb Scarlet, Spotted Tom Thumb, Pearl, Beauty, Crimson Tom Thumb, and how many more patches there were of the same kinds it would be difficult to say. The finest dwarf scarlet variety was King of Tom Thumbs, of very compact, free-flowering habit with blue-green foliage; Golden King of Tom Thumbs differs only in the colour of its flowers; and King Theodore is another of the same race, with blue-green foliage and very dark flowers. Of the Lobbianum varieties, Triomphe de Gand was remarkable for its very bright orange scarlet flowers; Lilli Schmidt, bright crimson, was also very fine, and Zanderi nigrum as having almost black flowers. Impératrice Eugénie, red, spotted and striped with yellow, was also very desirable.

For Marigolds both French and African Messrs. Carter are as celebrated as they are for Tropæolums. Of the excellence of some of these a short notice appeared in last volume, page 164. Dunnett's Tall Orange French was very rich in colour, and there were several beautifully marked dark crimson and orange or yellow forms. Of the African sorts the Orange Quilled was large, very double, and remarkably showy. The Lemon variety was equally fine, but being paler was thrown into the shade by its richer-coloured neighbour.

Calliopsis was also well represented in numerous varieties. Those of C. bicolor (better known as Coreopsis tinctoria), comprised some very showy yellow and crimson flowers, and some of the plants were so dwarf that they did not exceed 4 inches in height, but it must be remembered that elsewhere they would probably attain twice that height, as the object

at a seed farm is not to encourage leaf-growth but seeding. Calliopsis elegans nana, 1½ foot high, with crimson-eyed yellow flowers, was bushy and free-flowering; C. nigra speciosa nana, a fine dark crimson; C. marmorata nana, dwarfer in habit, dark crimson shading off to yellow. Brachycome iberidifolia, one of the most beautiful half-hardy annuals grown, a lavender blue, and its white variety, occupied a considerable amount of space; and of Candytuft, white, crimson, and purple, there were great quarters. The Crimson Candytuft was remarkably fine, and though effective anywhere, in suburban gardens it will not disappoint those who may try it, for it produces a rich mass of colour with no more trouble than scattering the seeds. Antirrhinums or Snapdragons, especially those of the very dwarf Tom Thumb varieties, are far too little grown; sown in pots or boxes covered with glass, or any cheap substitute for frames or hand-lights, and the plants fully exposed to the air in favourable weather previous to planting-out, they will continue in bloom till destroyed by frost, presenting various shades and mixtures of scarlet, crimson, rose, yellow, and white. Crescia, scarlet, is well worthy of cultivation on account of its splendid colour. Among the Indian Pinks it is scarcely necessary to mention the splendid varieties of Dianthus Heddewigii; among them we noticed a pretty semi-double white. D. latifolius splendens, of taller growth, is also very fine in colour, dark crimson, with a dark-lined eye. Alyssum saxatile compactum is one of the best yellow flowers for rockwork; and Mesembryanthemum glabrum, also with yellow flowers, is well suited for the same purpose, requiring, however, to be raised in heat and planted in a sunny situation. M. tricolor album, very dwarf, with white flowers, is another good rock plant.

Petunias treated as half-hardy annuals are so easily raised in quantity from seed, and by careful selection come so true to their colour, that where glass accommodation is not overlarge—and it seldom is—a large number of excellent varieties can be quickly raised in a small space; and it may be noted that those obtained from seed are not so liable to die off as when a stock is propagated by cuttings. There were a great number of double variously-striped and blotched varieties, grown separately and in mixtures. A new rosy magenta variety with a white eye, called La Superbe, is very fine; so, too, is Satin Rose, a paler rose, with a light-veined throat. These are very effective. We also noticed some pretty fringed sorts. Another half-hardy annual, Acrocliuium roseum, is so beautiful both in-doors and out, that, though now well known, it should not be passed over; and of other Everlastings there were quarters of mixed Helichrysums, white, yellow, and various shades from pale rose to dark red. The utility of the flowers for winter decoration is well known. Xeranthemums, which are also very useful Everlastings, were well represented in the white, and a new, very dwarf, dark purple variety. Rhodanthe Manglesii, one of the prettiest of all the Everlastings, it need hardly be said, was extensively grown.

Sweet Peas and Mignonette are such old favourites that it is no wonder that they are grown by the acre. Of Invincible Scarlet Sweet Pea there was about an acre, and of other kinds, and mixtures of these, probably more than the same extent. Of Mignonette, besides the common and large-flowered, Parsons's Giant White and the Giant Crimson, the one showing more white, the other more crimson than the ordinary kind, are fine varieties. The Hybrid Tree Mignonette, of more upright growth, also occupied a considerable extent of ground. Scabious and Salpiglossis in many varieties seem to be in great demand; a new dwarf flesh-coloured variety of the former, and a black, or nearly black, variety of the latter, were noted as good.

The value of the many beautiful Nemophilas both for outdoor and in-door culture requires no comment, and we will merely add it was computed that the length of the rows of N. insignis alone was fourteen miles. Virginian Stocks, useful as spring, summer, and autumn-flowering annuals, covered two acres; Sweet Alyssum an acre; and Godetias much more, owing to the numerous varieties which are grown. Of these showy flowers G. Whitneyi is one of the finest, having very large rose-coloured flowers with a large crimson blotch at the base of the petals, and the plant is free-flowering and of compact habit. Godetia roseo-alba is well known—of it there was a pale lilac variety with a crimson spot at the base of each petal—so is G. Lindleyana, but both are of somewhat tall habit; but there are several much more dwarf kinds, as G. reptans TomThumb, white, with a crimson blotch, the plant very dwarf and free-flowering, in fact a little bouquet, and G. reptans grandiflora, white. Besides the above, several other desirable Godetias might be mentioned.

WORK FOR THE WEEK.

KITCHEN GARDEN.

All the principal early crops should be in the ground and properly labelled, all beds and borders neatly squared off, Box and other edgings properly trimmed, and the walks clean and well rolled. I cannot press too earnestly on young men who wish to acquire anything like a correct knowledge of their profession, how necessary it is for them to keep a journal of every operation performed in the garden in which they are employed, leaving sufficient space for each day in their journal to admit of their appending remarks as to the success or otherwise of what was performed. A well-kept journal, with judicious remarks on the merits of different crops of fruits, vegetables, &c., would be no mean recommendation for future promotion. If previously delayed, the main crops of *Carrots*, *Onions*, and *Parsnips* should be sown, and adequate proportions of *Broccoli*, *Cauliflower*, *Celery*, *Lettuces*, *Parsley*, *Spinach*, *Turnips*, and *Thyme*. Plant *Potatoes*. Prick-out *Cabbages*, *Cauliflowers*, and *Lettuces*. See that slugs do not destroy crops as they make their appearance above ground. Sprinkle soot on young Turnips to prevent their destruction by the fly.

FRUIT GARDEN.

The protecting material should be gradually removed from Peaches, Nectarines, and Apricots, that the bloom may not suffer by a too sudden exposure. When canvas screens on rollers are employed, of course they are rolled up by day and let down each night; if the nights, however, are warm, screens need not be lowered quite down, as a little extra air by night will be more beneficial than otherwise to the bloom. Fig trees should have their winter protection removed, and be thinned and tied. The bloom of the choicest kinds of Pears should have some protection should frost occur. Where the trees are against walls this is easily done, but with espaliers and low standards the difficulty is greater. For low standards a slight frame, somewhat umbrella-shaped, and covered with calico or canvas, may be fixed over each tree. Of course the diameter of the frame should exceed that of the tree. For espaliers a width or two of canvas should be fixed on a frame over the line of trees. If the protection is placed 2 feet above the trees it will protect them from a rather severe frost provided it is not accompanied with wind, in which case screens will have to be fixed to windward as well.

FLOWER GARDEN.

Take advantage of showery weather to complete the planting of deciduous trees and shrubs without delay, likewise that of any evergreens left unplanted from the autumn, as from the present time to the end of the month is the most suitable season, next to the autumn, for removing most kinds of evergreens. In planting, avoid exposing the roots to the sun or drying wind. Mulch immediately after planting to prevent undue evaporation from the soil, as well as to save watering. A good watering overhead with the garden engine on the evenings of bright days will prove of great use to newly-planted evergreens, and when they are large the stem and some of the principal branches should have hayhands tied round them, which, if damped once or twice daily, will keep the bark moist, and facilitate the flow of sap. Those who have delayed the completion of planting and other arrangements in the flower garden, in consequence of cold and ungenial weather, must push on all such operations to meet the sudden and favourable change in the weather. Spring has arrived, and vegetation is singularly rapid. Weeds must be repressed early. Roll and mow grass. Look to last year's budded Roses, and rub off wild shoots from the stock. Continue preparations for bedding-out. Where Pentstemon gentianoides has not suffered from the last winter, the long stems should be cut back; the roots will throw up abundance of young shoots. Delphinium cærnleum and some Dianthuses must not be omitted from the list of decorative border plants. Note the colour and effects of early spring flowers with a view to future arrangement, as more general attention is now being paid to the spring garden. As the Auricula truss grows, and previous to the pips expanding, it will be necessary to remove the pips which are malformed or overcrowded. This must be done with a pair of very small sharp-pointed scissors, bearing in mind that the less they are handled the better. Take care that seedlings which have just emerged are not exposed to the powerful rays

of the sun. Many a promising crop has been sacrificed by inattention to this particular. Continue to put in cuttings of Dahlias; pot-off those already rooted, and harden such as are more advanced. Strike Pansy cuttings in the shade. Sow seed in a similar situation.

GREENHOUSE AND CONSERVATORY.

Proceed with the staking and tying-out of plants requiring such assistance, but if former directions relative to growing plants with short-jointed wood be carried out, stakes may in a great measure be dispensed with; although some will be necessary to give the plant its desired shape, never use more than will effect that purpose. Turn each plant frequently round, that it may not become one-sided. Hardwooded plants should be frequently examined with respect to their drainage. At this season many of them are either in bloom—as most of the New Holland plants—or approaching that state, and will, consequently, require a considerable amount of water, more especially large specimens not shifted since last season. It will be obvious that, if the drainage is imperfect, or, on the other hand, the entire mass of roots does not get equally moistened, the death of the plants must soon occur from one or other of the above causes: hence the necessity of paying attention to this important point, particularly when the most delicate plants are the first to suffer. The regular admission of air, according to the state of the weather and the period of the day, will not only be advantageous to the health, but conduce to the preservation of the blossom, of the many elegant plants which decorate conservatories at this time. Continue to shift those greenhouse plants which require it. Pelargoniums and Calceolarias for early blooming may be kept comparatively close and syringed daily.

STOVE.

The climbers in this house will require daily attention. Shift Achimenes, Gesneras, and pot others for succession. Orchids will require greater humidity, as the increasing power of the sun will induce a more rapid evaporation. Provide efficient material for shading every portion of the house, and proceed with the potting and general regulation of the plants. Dendrobium nobile will remain in bloom for a length of time if removed to the stove.

PITS.

Scarlet Pelargoniums, Petunias, Verbenas, and other plants for bedding-out should be removed to a cold frame, that a hardy habit may be induced preparatory to being planted out. Pot-off annuals and cuttings generally. Give air abundantly to Neapolitan Violets.—W. KEANE.

DOINGS OF THE LAST WEEK.

WE very much regret, and so will our readers, that illness has prevented Mr. Fish sending his usual contribution this week.

TRADE CATALOGUE RECEIVED.

William Paul, Waltham Cross, London, N.—*Catalogue of Roses, Pelargoniums, Camellias, Azaleas, &c.*

TO CORRESPONDENTS.

N.B.—Many questions must remain unanswered until next week.

REMOVING GREENHOUSE (*W. R. W.*).—You cannot remove any part of it but the moveable sashes. You may take these away, but all the brickwork, brick floor, and woodwork you cannot legally take away.

WASTE LAND BY RAILWAYS (*Two Gardeners*).—We believe that the land is let in places. Write to the Secretary of any line you prefer, and ask the question.

THINNING PEARS (*W. C.*).—In doing this it is highly desirable to leave the fruit evenly distributed over the tree. If the clusters of blossom are thickly placed, we leave only the terminal fruit. If it is desirable to leave three fruit, as in your illustration, we would, besides the terminal one, leave the two at *y* and *z*. We have sometimes left Pears hanging in clusters of from three to five, but the fruit was not so fine as that distributed evenly over the tree. In thinning, it is well to leave the best-looking fruits.

PEACH TREE SHOOTS DYING (*A Constant Reader*).—The roots being outside are too cold and torpid to supply sufficient sap for the rapid growth of the shoots inside the house. Put a heap of fermenting dung over the roots for a week or more to thoroughly warm the soil; then remove the heap, but keep the soil's surface mulched 2 or 3 inches deep, and let the mulch remain on throughout the summer.

CROQUET LAWN TUFTY AND BARE (*J. Darnton*).—Top-dress the lawn with a mixture of earth and leaf mould, rake it smooth, sow at once Small Yellow Clover (Trifolium minus), at the rate of 6 lbs. to the acre, and then roll it. Write to Mr. Wragg, Stoke Park, Ipswich, for information about the eggs.

REDNESS OF LEAVES IN CANADA (*F. P.*).—The red autumnal tint is especially caused by the leaves of the Maple. The following extract is on the subject:—"In the autumn there is one feature peculiar to Canada—namely, the crimson tint of the foliage. This effect is principally produced by the leaves of the Maple tree, which turn to a deeper and more vivid red than even those of the Virginian Creeper. But the Maple in Canada has another excellency; it produces in the spring a valuable sugar, which exudes from the tree when tapped. The Maple-sugar season is quite an epoch in the year. It occurs in the early spring, when the first warm weather causes the sap to rise. An incision is then made in the bark, and the bleeding of the tree takes place. Two or three frosty nights and warm days are needed at this crisis, to facilitate the flow of sugar and improve its taste. The fluid is boiled and becomes solid when cold. But as syrup it is very pure and agreeable."—(*Bishop Oxenden's "My First Year in Canada."*)

PLANTS FOR WALLS (*Salopian*).—The best and quickest-growing of all climbers for walls are the Ivies, and of these the Irish (Hedera canariensis), English (H. Helix), H. digitata, and H. Rægneriana. Among climbers, not evergreen, are Ampelopsis hederacea, A. Veitchii, which, with the Ivies named and Jasminum nudiflorum, will succeed on a north aspect; Aristolochia Sipho, Lonicera aurea reticulata, Caprifolium flexuosum, C. Periclymenum, C. sempervirens Brownii and floribundum, Clematis Fortunei, C. hybrida splendida, C. montana major, C. Jackmanni, and C. Vitalba—the last will succeed on a north aspect—Wistaria sinensis and its variety alba, and Jasminum officinale grandiflorum. Evergreen plants not climbers are Berberis stenophylla, *Buddlea globosa, *Ceanothus floribundus, *C. papillosus, *C. integerrimus, Cerasus Laurocerasus caucasia, Cotoneaster microphylla, Cratægus Pyracantha, *Escallonia macrantha, *E. glandulosa, *Garrya elliptica, Ligustrum japonicum, Magnolia grandiflora, Exmouth variety; and Photinia serrulata. Those marked * require a south or south-west aspect. Viburnum suspensum and Cydonia japonica are not evergreen, but very good. All will succeed on an east or west aspect except those marked otherwise.

CHRISTMAS ROSE AND LILY OF THE VALLEY AFTER FLOWERING (*Eve*).—The plants should be hardened off, and planted out in good rich light soil on a border shaded from the noonday sun. They should be watered after planting, and in dry weather. They will not be suitable for growing in pots next year, but after a season's growth in the open air may be used again for pot culture.

PLANTS FOR COVERING A TRELLIS (*W. R. P.*).—Bignonia radicans and Aristolochia Sipho are not suitable for a screen in the open ground, in fact the former requires a south wall, and the latter a west one. We should have the plants named in the answer to "*A Young Reader*" in to-day's Journal, which see. They will all serve your purpose.

ROOTED CUTTINGS OF GERANIUMS AND CALCEOLARIAS (*G. H. W.*).—Those which are rooted will be available for this year, but the unrooted will not. Procure rooted cuttings at once, place them singly in small pots; set the Geraniums in a frame over a gentle hotbed, keep them close and shaded until established, then admit air freely, and by the end of May they will be good plants. The heat of the bed need not be more than 65°, or, failing that, a cold frame will suit, only they will not start so freely. The Calceolarias will succeed in a cold frame, and instead of being potted they may be planted 3 inches apart in good rich soil made firm, keeping close and shaded until established; then admit air freely, and harden well off before planting out. They will flower finely from July to the end of the season, but no time must be lost in procuring the rooted cuttings.

CLIMBERS FOR LATTICEWORK (*A Young Reader*).—You do not say whether the latticework is in the open ground or against a wall. We should plant it with Clematis Fortunei, C. Helena, C. hybrida splendida, C. Jackmanni, Caprifolium Periclymenum, and C. sempervirens floribundum, with some climbing Roses, as Dundee Rambler, Ruga, Queen of the Belgians, Ayrshire Roses; Madame d'Arblay, Hybrid Climbing; and Russelliana, Multiflora race. The only way to remove the grass growing amongst the Alyssum will be to pull it up by the roots as much as possible; and if that cannot be done without pulling up the Alyssum as well, you may reduce the growth of the grass by pulling off the tops when they can be laid hold of by the hand, and this repeatedly done may enable the Alyssum to outgrow the grass. In the holes in the wall we do not know what you could plant, unless you were to fill them as well as you could with soil, and plant seedling Wallflowers, Linaria Cymbalaria, and L. alpina. The small wood Ivy would be good. You cannot raise Cucumber plants unless you can command light as well as heat, therefore the place over the boiler will not suit.

MIGNONETTE FOR WINTER FLOWERING (*A Lover of Flowers*).—We sow early in May in a pan of light turfy loam, with the addition of one-third leaf soil and a sixth of sharp sand. The pan is placed in a frame; when the seedlings appear air is admitted freely. The plants, when an inch high, are potted in 3-inch pots, and placed in a cold frame on coal ashes. They are watered as required, and when the pot becomes full of roots they are shifted into 4-inch pots. They are afterwards kept in the frame with abundance of air, and are watered overhead every evening. When they need a support we give them a small green-painted stick about 2 feet high, tie the main stem to that, and pinch out all the flowers as they show up to September, at which time we have them in 8-inch pots. They are shifted into 6-inch pots when those 4½ inches in diameter are full of roots; and by the beginning of October they are nice plants about 2 feet high and 18 inches to 2 feet through. They flower throughout the winter, but to do so all the spikes should be cut as they come into flower, and none ought to be allowed to seed. The plants need tying, as the shoots are very brittle. The soil we use is two parts light turfy loam chopped up rather small but not sifted, one part leaf soil, half a part old hotbed manure, and a free admixture of sand. Sometimes, but not always, we add a little sandy peat. In growing Mignonette it is important to water only when needed, never to allow the plant to flag, but also never to sodden the soil. Plenty of air and light are required, and for flowering a temperature of 45° at night. The kind we grow most is the Large-flowered Pyramidal. The New White (Parsons's) we shall grow more extensively this season.

TEA ROSES (*A Constant Subscriber*).—Forced Roses the second year ought to have more than three or four blooms on at a time, but this will not be accomplished merely by pinching back. They want to be repotted into good soil, to be plunged in the open ground, and to have the wood well ripened. Care should be taken not to allow the soil to be soured by worms. Give a good top-dressing; well-decomposed old mushroom-bed manure, with a little guano added to prevent fungus, is as good as any. Air and light are also necessary. Above all do not weaken plants by drawing them up too much, and giving too much dry heat.

HONEYDEW (*J. G. K.*).—Heat attended by dryness of the soil is very liable to produce an unnatural exudation upon the leaves of some plants, and is popularly known as honeydew. It is somewhat analogous to that outburst of blood which in such seasons is apt to occur to man, and arises from the increased action of the secretory and circulatory system, to which it affords

relief. There is this great and essential difference, that in the case of plants the extravasation is upon the surfaces of the leaves, and in proportion, consequently, to the abundance of the extruded sap are their respiration and digestion impaired. Sponge the leaves, and then more moisture both in the soil and air of your orchard house will probably prevent the honeydew.

Aucuba Seeds (——).—The seeds will probably produce both female and male plants, and if these are allowed to grow near together the pollen of the males will fertilise the others. As the male flowers usually open earlier than the female, to insure fertility some pollen should be preserved between folds of blotting paper, to be applied by a camel's-hair pencil to the female flowers when these are expanded. Write to Mr. Turner, of Slough, or Mr. Ware, of Tottenham, about the Polyanthuses.

Compost for Vine Border (*T. E. P.*).—We do not approve of many ingredients being mixed up in the compost for a Vine border. Half a hundredweight of inch bones added to each cartload of your turf would make the best medium for Vine roots to work in. As your "Infusoria guano" shows nearly 96 per cent. of organic matter and silica, you might mix a small portion of it with your compost. The best way to use guano for Vines is to sow it on the surface, and water it in when the Vines are in full growth.

Figs on Back Wall of Vinery (*A Subscriber*).—Figs will succeed in such a position better than any other fruit we know. Plant them in good turfy loam. Figs are apt to be unfruitful if planted in a rich compost, unless the roots are confined to pots, in which case the compost should be turfy loam, crushed bones, and a little rotted manure.

Destroying Woodlice (*X. Y. Z.*).—We should not despair of destroying them by trapping, even where their numbers are great. Pouring boiling water on them can also be practised where the water will not come in contact with plants. A few Bantam fowls will devour these and other insects, but will damage many things by their scratching.

Thalictrum adiantoides Treatment (*C. A. S.*).—It is perfectly hardy and is an herbaceous perennial, requiring to be grown in sandy loam, with the addition of leaf soil and sandy peat. It is propagated by division early in spring. Harden-off the plants before planting out. It will soon be ruined in a house with the temperature you name. T. anemonoides flore-pleno is an exceedingly pretty flower, with very delicate and elegant foliage, and great numbers of Ranunculus-like snow-white buds.

Geranium Leaves Spotted (*M. A. M.*).—The leaves sent have the appearance of being spotted by the sun's rays striking on them whilst wet. Admit air more freely, so as to have the leaves dry before the sun has much power. Sometimes the spotting arises from growing the plants in too rich soil, and watering them too abundantly at the roots, together with a low temperature and close moist atmosphere. We think that in your case it arises from sprinkling overhead. Give more air and keep drier.

Climbers for Shading Greenhouse (*Waterloo*).—We have the following, and find them first-rate, never giving us any trouble as regards insects, and they are not syringed:—Tacsonia mollissima, T. Van-Volxemi, Passiflora cærulea racemosa rubra, P. Impératrice Eugénie, P. Comte Nesselrode, P. Countess Guiglini. They give us all the shade required, and are fine flowering climbers. They will succeed if grown in pots, but are best planted out. Ours are now quite a sight—the shoots hang from the roof as climbers ought, in a month will be all in bloom, and they continue throughout the season. They are admired by everybody.

Leptosiphon partially Slug-eaten (*J. J. R.*).—As the plants are only just appearing, sow again, covering the seeds very slightly, and dust the surface with quicklime. There are drawings and descriptions of in-door plant cases in our Journal, vol. ii., page 130, and vol. iii., page 123. The heights of Geraniums (Pelargoniums) are set in the "Cottage Gardeners' Dictionary."

Patenting and Registering (*W. H. Farendon*).—Write to some Patent Agency office. We have no information on the subject.

Flower-garden Plan (*Tyro*).—We never undertake planting, we only criticise that proposed. Send a plan planted as you intend, and we will state our opinions on it.

Bark of Vine Joints (*P. C.*).—The Golden Champion is very vigorous, and we do not think that the slight decayed spot on some of the joints will spread so as to be injurious. We believe it to be a consequence of the growth being more rapid than the roots can supply sap to maintain. We should put a slight plaister of clay and soft soap on each spot, and keep the air of the house less moist and more cool.

Insect on Peach Trees (*J. R. P.*).—The night marauder is a weevil, Curculio oblongus. It hides in the soil and holes in walls during the day. Spreading a sheet beneath the tree at night and jarring the branches to make the weevils fall is the only remedy.

Names of Plants (*D. B. S.*).—1, Polygala Chamæbuxus; 2, Pulmonaria officinalis; 3, Dielytra formosa; 4, Arbutus Unedo; 5, Amelanchier cana densis; 6, Polygala Dalmaisiana; 7, Linum trigynum. (*Camjee*).—A variety of Lady Fern, Athyrium Filix-fœmina var. molle. (*R. B. L.*).—1, Possibly some Blechnum, but like No. 3, it is undeterminable; 2, Cyrtomium falcatum; 4, Nephrolepis tuberosa. (*R. Maries*).—No Ranunculus, as the leaves or leaflets are opposite. More like a submerged leaf of some Œnanthe or other Umbellifer.

POULTRY, BEE, AND PIGEON CHRONICLE.

TREATMENT OF FOWLS BEFORE AND DURING EXHIBITION.

On the few occasions, hitherto, when I have sent birds to exhibitions I have had to do so under the most unfavourable circumstances, having had to take them in the first place from pens of bare earth only a few feet square which formed their ordinary abode. Under such circumstances it is not easy to get the vigorous health which birds on a good grass run almost always enjoy; yet I have never had a bird returned me from a show any the worse, and have frequently wondered at the bitter complaints I often see of disease and death. But we live and learn; and after the discussion on this subject carried on by "A Winner of Four Cups," "Amateur," Mr. James Clark, and Mr. Nicholls, I wonder no longer. My only wonder is that more fowls do not die.

I have reason to believe that Mr. Nicholls's description of the treatment of many birds is not overdrawn; but I wish to remark that no first-class poultryman ever treats his fowls in that way, or now endeavours to obtain the utmost degree of obesity. Even when no other ill results follow, I have often noticed where there are really good judges, that such birds are virtually (and very properly so) disqualified, being what is known as "out of condition," for the plumage of such pampered birds is invariably "soft," and lacks the beautiful glossy look of the healthy fowl. These are the cases which get "starved to death" if delayed a few hours on the return journey, whereas last October I sent a couple of pullets to a lady in Ireland, which from some mistake were four days on the road, but arrived in perfect health and with first-rate appetites. An occasional loss cannot be avoided, as a cold building may give roup to a delicate breed; but as to fowls dying of "starvation" from any delay that could possibly occur in returning, it is simply nonsense if they are in ordinary health and vigour.

Penning, however, is of the greatest use before exhibition. Either a room may be set apart, or, failing that, pens resembling those used at shows provided, only larger—say about 3 feet square. In these, after washing, the fowls may with marked benefit be confined for two or three weeks before exhibiting; but the object is *not* to make weight, but to put on gloss and condition, and to get the birds clean. The food must be plain oatmeal or other meal, mixed stiff with boiling water every morning, and some good grain at night, with a little hempseed or buckwheat to finish with. It is of the greatest importance not to overfeed, giving just as much as the birds will eat up quickly, and then clearing all surplus away. Two or three times a-week some linseed stewed into a jelly should be added, to give gloss, and a little meat now and then will keep up the appetite and spirits; but appetite should never be more than satisfied. Thus treated, the birds will go on improving for weeks, and retain the highest health. One pair of my pullets were never out of a pen from a fortnight before the Crystal Palace Show till they returned from Birmingham; one bird when first put in had hardly recovered from a severe cold of weeks, nearly running into roup; but they both came back from Birmingham better than ever, and with first-rate appetites.

What is needed in the pens is not sand, which is nearly useless, but coarse clean gravel or grit, such as is used generally at Birmingham. The objection to it is, that white fowls, especially, get dirty upon it, and to avoid this a large handful of chaff cut very fine should be sprinkled over the grit. If the pens are covered in this way the birds will scratch about a good deal, which gives them exercise, and get cleaner and cleaner every day. Of course, every morning the whole must be scraped out and fresh put in. The pens at shows should be supplied in just the same way. Grit alone gives neither cleanliness nor exercise; chaff alone does not help digestion, but, as far as my experience goes, by using both I believe fowls might be penned in a cage a yard square for almost any time in reason, and come out looking better than they went in, provided insects be keep away. Mr. Clark is quite right as to the necessity for coarse grit, even to holding particles the size of large peas, which so far as I have observed seems the favourite size for swallowing, and will all be picked out in the course of the day.

I feel bound to say that at very few shows fowls are fed as they ought to be. I particularly noticed at Birmingham, that in all the Asiatic classes just the same rations were given to the pairs of hens as to the single cocks; and as even a single hen eats far more than a cock, the consequence was that while most of the cocks had left more or less food, the hens and pullets were ravenous. Here what was wanted was simply a little thought, the food being of the best quality, and this mistake of not considering what there is in each pen is very common. In spite of this, I do not think unpampered fowls would often be injured by any ordinary show treatment; but so far as my observation goes, the cases of indigestion and blackened comb to which reference has been made, are almost always caused by carelessness with the water supply, and generally the first evening. The birds arrive from their journey, and find a full watertin in their pens. Those which are very thirsty drink this entirely up the first thing, and thus distend their crops with fluid before they eat a morsel; the comb goes black almost at once, in the case of birds at all out of condition, and great care is needed to save the fowl. In fact such birds have now what is known at home by the name of "soft" or "swelled crop," and in the same way—by excessive drinking after thirst; the contractibility or tone of the organs is gone, and hence the mischief.

All these things may be avoided without any additional trouble to show committees. Let the pens be floored, as I have said, with coarse clean gravel or grit first, and fine chaff on the top of it. The evening of reception let the water tins for single birds be only one-quarter, and for pairs only one-half full. This especially is of the greatest importance. Let the best fresh oat or barley-

meal be used for the morning, and the best wheat or small maize for the evening feed, the fowls being fed with judgment according to the occupants of the pen, and all being fed rather sparingly than otherwise. Above all, let the water be looked to unfailingly throughout, that thirst may not occur and cause the birds to drink to excess, which always causes purging as well as other evils; and if a little can be given four times a-day it will be much better than filling the vessels twice. I repeat, in nine cases out of ten it is mismanagement in the water supply which does the mischief, joined perhaps with pasty, sloppy food. The latter should always be very stiff or dry, and that is one great advantage in using oatmeal over barleymeal, as it gets drier after it is mixed, while barleymeal does not.

If a small turf, even 2 inches square, can be put in each pen daily, it has a wonderful effect, and at small local shows this can always be done. In large ones, the best plan is to give daily a slice of turnip, beet, or mangold, or a few shreds of the same as delivered by a cutter for sheep. Cabbage is not safe for many fowls, being too much of a purgative, and is also more trouble, but not to give some fresh vegetable food at any large show is absolutely inexcusable.

A poultry club might do much good in this as in other things, by printing a few plain rules for show-management and sending to committees, with an inquiry whether they would be followed, or what other system would be adopted. Then all exhibitions which were stated to be fed and conducted as authorised by the society, would so far have a claim to the confidence of exhibitors, and would find it worth while to state the fact. It is in such ways, rather than by any direct pecuniary *quid pro quo*, that I think the members might receive full value for their subscriptions, while they had the consciousness of conferring substantial benefit on all.—L. Wright.

JUDGING RABBITS AT NORTHAMPTON.

I notice in your Journal of the 4th inst. a letter from Mr. S. G. Hudson, Hull, on the above. I have personally investigated the matter, as it affects not only the honour of two individuals, but also collaterally the welfare of our show for the future; and I say once for all, that if I had found, or had had the least suspicion of any improper conduct on the part of any one of the Committee, I should at once have demanded his expulsion or withdrawn my name from the Society, and should have published in the London journals my reasons. It is perfectly true one of the Committee who was also an exhibitor did assist the Judge, not in the way insinuated by Mr. Hudson's letter, but by taking the Rabbits from the pens for Mr. Rayson's inspection, and to assist him in measuring when that was required. I admit this was wrong, being an act which would no doubt tend to fan to a flame the spark of dissatisfaction in the minds of some unsuccessful exhibitors when once it was known; but as far as Mr. Rayson is concerned I am perfectly satisfied he was not biased in his judgment by the person who assisted him, and I would stake a large sum on the honour and integrity of the person who is accused of having succeeded in making the Judge alter his opinion. I have a letter from the Judge, with whom I have communicated, and he flatly denies he was in any way interfered with. I have seen his assistant, and he likewise states that he not only performed his duties in silence, so far as the judging of the Rabbits was concerned, but denies having boasted in the words alleged by some one unknown at present. Now, to this I will add my testimony, which is, that the Rabbits were fairly and equitably judged by the Judge himself, and no one else, and I further believe he would at once have appealed to me if any attempt had been made to bias his opinion.

So much for that part of Mr. Hudson's letter, and now we come to something which is not true. The man in the clouds (for all we know at present), says, "Those of the Committee who exhibited, and Northampton folks, seemed to monopolise the prize list." This I flatly deny, and as the proverb has it, "What is written stands." I refer Mr. Hudson, the exhibitor who wrote to him, and the man in the clouds who talked to the exhibitor, to the list of awards published in your Journal, and they will then see that what has been said is untrue. I find only three second prizes and two third prizes were taken out of eighteen, one three-guinea cup, one two-guinea cup, and one silver medal.

In conclusion, I leave the matter in the hands of the exhibitors of Rabbits at our show, and feel assured they will not join with Mr. Hudson in the suspicions he has raised, but do believe they will join with me in an expression of sorrow that he has been so undoubtedly misled by something which somebody overheard and communicated to somebody else, and, what is still worse, was made the means of advertising that which is not true. —W. Humphreys, *Secretary to Northampton Show.*

DRAGOONS.

In your Journal of the 4th inst. Mr. G. South gives us his opinion upon the standard of a Dragoon, respecting which I beg to differ from him. In the first place, the colour of the beak entirely depends upon the colour of the bird. An inch and a half is too short for the length, and the wattle should be almost nil. The eye wattle should not be pinched, but even, smooth, circular, and always of a fleshy colour. The neck should be fully the length of a Carrier, and of equal carriage. The bars should not be broad, but as narrow as you can possibly get them, and in both Blues and Silvers raven black.—John G. Dunn, *Newcastle-upon-Tyne.*

[We have omitted all your critique on "Carrier." He is entitled to write anonymously if he pleases, and his opinions may be approved or disapproved as other Dragoon fanciers may estimate them.—Eds.]

FROSTERLEY POULTRY AND PIGEON SHOW.

The annual Exhibition of poultry and Pigeons at Frosterley, Durham, was held on the 14th. Considering the prizes offered the entries were numerous, and in some classes the birds were good. The Committee intend to make the schedule a more attractive one for the future.

The two winning pens of *Spanish* were of excellent quality, in fact quite up to the standard; and the class for Blue Spanish (Andalusian) was also noteworthy. *Dorkings* were good, but, with the exception of the first-prize birds, not well shown, as a rule a Silver or Half-silver cock being mated with a sound-coloured Dark Grey hen. The *Cochins* were of fair quality, and the *Brahmas* good. There was also a moderate show of *Game*, and the cup for the best pen shown by a local exhibitor was awarded to a perfect pair of Brown Reds. In Duckwings the colour was all that can be wished for, but they were not nearly so sound in hand as the Reds, and the only other noteworthy bird was a Brown Red cockerel of very promising qualities. In all the classes of *Hamburghs* the winners were very good and in fine condition, and the whole of the *Polands* were noticed in the prize and commendation list.

Game *Bantams* were the largest class, but, with the exception of the winners, they were poor. In the class for hens a pair of Brown Red Game were first and Dorkings second. The *Guinea Fowls* were uniformly good, as also the Aylesbury *Ducks*, and the winning Rouens were very large and good in colour.

There were but four classes for *Pigeons*, and with the exception of the first-prize Carriers, the Blue Pouters, and Red Turbits in the Variety class, they were but poor in quality.

Spanish.—*Black.*—1, J. Hutchinson, Pity Me. 2, W. Atkinson, Bishop Auckland. *hc*, B. Morson, Bishop Auckland. *Blue.*—1, H. Simpson, Pry Close. 2, W. Johnson, Frosterley. *hc*, J. Gowling, Batts, Frosterley.

Dorkings.—1, C. Widdas, North Bitchburn. 2, J. T. Proud. *hc*, T. Currah, Woodcroft.

Cochin-China.—1, W. Atkinson. 2, A. Widdas, Witton-le-Wear.

Brahma Pootras.—1, C. E. Morgan, Bishop Auckland. 2, R. Ward, Bollihope. *hc*, G. F. Wade, Wolsingham; T. V. Johnson, Frosterley.

Game.—*Black-breasted and other Reds.*—1 and Cup, J. Vickers, Snowfield. 2, J. Gibson, Stanhope. *hc*, T. Robson, Bishop Auckland. *Any other Variety.* 2, J. Gibson, Stanhope. 2, J. Gibson. *hc*, Buglass & Williamson, —1, Waller & Wilkinson, Stanhope. 2, J. Gibson. *hc*, Buglass & Williamson, Curville.

Game.—*Cock.*—1, R. Charlton. 2, J. Fenwick, Stanhope. *Cockerel.*—1, T. Robson. 2, Buglass & Williamson. *hc*, C. Widdas.

Hamburghs.—*Golden spangled.*—1 and *hc*, W. Whitfield, Fence Houses. 2, W. Atkinson. *Silver-spangled.*—1, J. Fenwick, Stanhope. 2, Buglass and Williamson. *hc*, J. Hutchinson; G. Hodgson, Eyewood.

Hamburghs.—*Golden-pencilled.*—1, G. English, Frosterley. 2, T. Preston, Bishop Auckland. *Silver-pencilled.*—1, J. Pearson, Bishop Auckland. 2, J. Taylor. *hc*, M. Ridley, Peakfield.

Polands.—1, C. E. Morgan. 2, Buglass & Williamson. *vhc*, P. Swindle, Alston. *hc*, Buglass & Williamson; J. T. Proud, Bishop Auckland.

Game Bantams.—*Black-breasted and other Reds.*—1, W. Atkinson. 2, W. Grey, Tow Law. *hc*, C. E. Morgan; R. Milburn; W. Brown. *Any other Variety.*—1 and 2, W. Waller & Wilkinson.

Couple of Hens.—1, J. Vickers. 2, Waller & Wilkinson. *hc*, B. Morson; Mrs. Wilkinson, Bucklerwade; J. Taylor, Bollihope.

Guinea Birds.—1, J. Gibson, Stanhope. 2, J. Dobson, Sunnyside. *hc*, J. Vickers, Frosterley; W. Wilkinson, Frosterley.

Ducks.—*Aylesbury.*—1, Waller & Wilkinson. 2, T. Gibson, Frosterley. *hc*, G. Gardner, Frosterley; J. Robson, Batts, Frosterley. *Rouen.*—1, Miss J. Simpson. 2, T. V. Johnson, Frosterley. *hc*, W. Simpson; J. Bewley, Frosterley. *Any other Variety.*—1, Master J. Ridley. 2, Miss Newton, Frosterley.

Gandea.—1, J. T. Proud, Bishop Auckland. 2, J. Bewley. *hc*, R. Currah.

Pigeons.—*Carriers.*—1 and 2, T. Sanderson, Stanhope. *Barbs.*—1, T. Sanderson. 2, C. E. Morgan. *Jacobins.*—1, J. Parker. 2, J. Young, Bishop Auckland. *hc*, J. T. Proud. *Any other Variety.*—1, Waller & Wilkinson, Stanhope. 2, J. Young. *hc*, C. E. Morgan.

Mr. E. Hutton, Pudsey, Leeds, was the Judge.

SILVER DRAGOONS' BARS.

As yet not one word has appeared why the precedent I quoted in my former letter should not be upheld. In addition to the shows I then named, the second-prize birds at Northampton and the first at Walsall had brown bars.

Unquestionably no one has been so successful in breeding and exhibiting Silver Dragoons as Mr. Percivall, for, out of the shows I have named, this gentleman was first at Birmingham 1867–8–9; first at Manchester in 1867, and bred the birds with which Mr. Graham was first at Birmingham in 1870, Mr. Percivall also exhibiting Silvers that year, the whole of these birds having brown bars. As Mr. Graham says Mr. Percivall has long since expressed his opinion that Silver Dragoons should undoubtedly have black bars, I should be glad if he would in-

form me and the fancy at large why Mr. Percivall has changed his mind on this subject. Perhaps Mr. Graham would also kindly state where and what prizes he himself has won with brown-barred birds.

Mr. Graham says my remark about the black bar on a light body, nearly white, is simply absurd to all who know anything at all about the breeding of Silvers; if so, how is it that so successful a fancier as Mr. Graham has never (as far as my personal experience has been, and I have visited many shows) exhibited other than brown-barred birds until he purchased the second-prize pair at the last Crystal Palace Show, Mr. Graham himself exhibiting brown-barred birds there? The colour of the bar of these birds, too, which Mr. Graham writes up as black, is not black—far from it. At the Crystal Palace Show I personally heard these birds denounced as not being the proper colour for a Silver Dragoon, and at Birmingham a consultation of several leading fanciers of the midland counties was held at the front of this very pen of birds, and they unanimously pronounced them to be a pair of washed-out Blues with bad-coloured bars.

Mr. Graham says my want of success in breeding black-barred birds is my want of knowledge how to match them, and proceeds to tell me how the black bar can be produced easily enough; for his good intentions I am obliged, although my own experience, as will be seen below, has proved his theory to be worth nothing. I do not think matching Blue to Silver is very new information; if there is anything in what Mr. Graham says, the black bar, instead of being the exception, would be the rule.

For Mr. Graham's information I will state that six years ago I commenced breeding Silver Dragoons from a blue-rumped cock, with a distinct and well-defined bar, mated to a Silver hen bred from a Blue; their offspring were two Silvers with brown bars. These I again mated, one to a blue-rumped bird, and the other to a Silver, and the produce of all were Silvers with brown bars. Again, I put the produce of the last-named blue-rumped bird to a white-rumped Blue; again the produce had brown bars. I have also crossed the Silver cock bred from the above crosses with a blue-rumped hen, and with the same result. In fact, I may say I have bred them in all ways a fancier could suggest to improve the Silver, at the same time having due regard to a distinct and well-defined bar. For the first four years I never sold a single bird I bred, but purchased others to cross with them, and the results of the six-years breeding have been brown bars. I have in my loft at the present time Blue Silvers with brown bars, all descended from blue-rumped cocks and Silver hens in the way Mr. Graham suggests, and several of them I can trace back for four generations bred from Blues. On this experience I based my remarks that it was next to an impossibility to produce a light body, nearly white, with a black bar. Not only is this my experience in Dragoon-breeding, but a friend of mine, who has had twenty years' experience before me, says his views coincide with mine. If Mr. Graham will only look back, he will find I was breeding Silver Dragoons a long time before he commenced to exhibit Dragoons.

I will also add, I can breed black-barred birds as easily as I have my brown-barred ones; but the question at issue is, Which is right, the brown bar which won all the prizes formerly, and, consequently, which all fanciers have followed for years past, or the black bar, which has no precedent to back it up, and is only wanted by one or two who wish to lead the fancy?—H. Allsop, 51, *Spencer Street, Birmingham.*

BARB AND FANTAIL PAIRED AND BREEDING.

I find authors almost invariably agree that the offspring of a Barb and a Fantail will be mules, and therefore will not breed with another Pigeon. There is at present in this town a Black cock Pigeon, the offspring of a Black Barb cock and a White hen Fantail, which has bred several nests of young ones, and is still breeding with a common Dovehouse Pigeon. I do not question the authority nor the grounds on which these writers rest their opinions, but the above are facts that have come under my own observation.—A. G.

[A mistake is easier made than rectified. An untruth, even when proved to be such, is still believed in; sometimes, as in the above instance, because the false statement has necessarily been made first, and the correction has not reached as far nor been read by so many. Wilkes once said, referring to his disadvantage of an ugly small-pox-marked face, that still, such was the charm of his manners, "he was only half an hour behind the handsomest man in England." I have always doubted that, because half an hour's start is sometimes everything in the race of life. Thus, two friends were sweet upon the same lady—(a fact this). One told the other he meant to go at once and propose to her. His friend advised him to go first and buy a pair of gloves and a new hat and tie, as he would look better and be more likely to be accepted. Taking the advice, he went off to hatter, glover, and draper. Newly rigged out, he was half an hour after at the lady's door, where he met his friend coming out with a smiling face. "What have you been here for?" said he. "Well, I have been and proposed to Miss M—— and am accepted; you are half an hour too late." Now what has all this to do with Barbs breeding with Pigeons? Well, both are in the *Dove line*, at any rate.

This error in regard to Barbs breeding with Fantails and their young not being prolific, is happily not a mistake of the old English writers on fancy Pigeons. They were not, indeed, very good naturalists, as they stated that all the varieties of fancy Pigeons were derived from the Stock Dove, whereas they come from the Rock Dove; still, they did not state that any varieties would do other than cross-breed productively. Some French writers are said to have stated that the Turbit will not cross-pair successfully with other Pigeons, and, says Mr. Brent, "Some German writers affirm that the cross between the Fantail and Barb are unproductive *inter se*, from which they argue that they must be distinct species, and not mere varieties." Both these are simple mistakes. A friend of Mr. Brent's proved the cross to be easy and fertile, and Mr. Charles Darwin did the same. It is simply a case of a correction not having been as extensively circulated as a blunder. The lie has had the advantage of half an hour's start. I daresay some one, twenty years hence, will read and believe the untruth, and not know that it is such. I have thought it right, therefore, prominently to notice "A. G.'s" letter, and not merely put an answer of a few words in the Letter Box.—Wiltshire Rector.]

EVEN-MARKED CANARIES AND MULES.

In Mr. Wallace's article which appeared in your issue of March 14th, he states that a bird with even eye marks alone, even wing marks alone, or with both even eye and wing marks, should be considered as Even-marked; yet I do not find that he urges the same reasons for the cap-marked bird—that is to say, although he asks for a bird cap-and-wing-marked to be considered as Even-marked, he does not state that a bird with a cap mark alone should be considered as Even. I really think any fancier would scout such being allowed; in fact, it would be neither more nor less than a ticked or an uneven-marked bird.

When I stated that if a cap mark were allowed in an Even-marked bird, so should a saddle-mark, I meant to imply that both were foul marks, inasmuch as they often connect, and always destroy, what might otherwise have been perfect markings.

I still maintain that the standard of even marks in Canaries should be the same as in Mules. I can assure Mr. Wallace that I have seen excellent-marked Mules with beautifully formed caps that were never noticed in an exhibition, even by judges who at the same exhibition had awarded prizes to cap-marked Canaries in an Even-marked class.

There are many reasons in my opinion why cap-marked birds should not compete as Even-marked birds, one of which is that exhibitors who cannot attend an exhibition will be at a loss to know to which stamp of marks (cap or eye marks) the judge or judges have awarded the prizes, and if inclined to claim a bird will hesitate for fear of being served in a similar manner to Messrs. Wallace & Beloe, when they claimed the second-prize Even-marked Buff Norwich at a show held in Middlesbrough, December 31st, 1869, with the expectation of getting an eye-and-wing-marked bird, when they were disappointed to find it cap-and-wing-marked, while their own birds exhibited in the same class were behind it, although they were eye-and-wing-marked.

The only way I can see to clear up the mystery which Mr. Wallace states hangs over cap-marked birds, is to decide which of the two kinds of markings—eye or cap—has to be considered as part of an Even-marked bird; when this is done, let the discarded mark be for ever considered as uneven. So long as cap and eye-marked birds contend together there will be uncertainty and dissatisfaction.—R. Hawman.

LIGURIAN VERSUS COMMON BEES.

As I see one of your correspondents asks whether the "Ligurian is superior to the common black bee," I send my last year's experience of the former, and if the same can be reported of the black bee I shall not have so strong a preference for my favourites.

This time last year I had four stocks of Ligurian bees in Woodbury frame hives, and at the end of October I made up twenty stocks in the same description of hive, and all strong. Besides these, I had three swarms which I joined to weak stocks. At the same time I took about 80 lbs. of honey, leaving ample store in the hives. On examining these hives on March 27th, I found all of them in first-rate condition, having much of last year's honey still in store, and in many of the hives I found quantities of drones hatched. If this month be fine I shall not be surprised if there be more than one natural swarm before the 1st of May.

I give a decided preference to natural over artificial swarms

for although the latter are simple enough to effect, I do not find the result in all cases the same, and as in most cases where Nature is forced, there is a rebellion and consequent loss of energy.—Monkstown.

OUR LETTER BOX.

Hens Disordered (*M. Henderson*).—The sudden stupor and other symptoms you name show that your fowls are too fat, and are overfed. Give them less nourishing food, and plenty of grass and lettuce leaves, and the symptoms will pass away. Give the hen with a stiff neck a dessert-spoonful of castor oil, and put all upon lower diet.

Eggs Moved from Nest to Nest (*Ten Years Old*).—Fowls will have no difficulty in removing an egg anywhere, if it can be done by rolling. We believe they will easily help one over a low partition, but we do not believe it in their power to lift or carry an egg anywhere.

Preventing Eggs Hatching (*Moy*).—A good shaking will often spoil an egg for sitting. It is very seldom eggs are put under hens that are bought in markets. We believe the shaking will answer your purpose. We have not Mr. Atlee's address at hand. You will find it in some of our back numbers. The whole of the husk is ground into flour, and it is this that is the foundation of many of its valuable properties. The operation is so thoroughly performed that when mixed there is no coarseness, not even so much as in oatmeal. It can be made into a smooth paste.

Fowls for Confined Space (*Puzzled*).—Brahmas and Houdans would be recommended by your friends because they bear confinement well. The latter do not sit, and as a rule such produce more eggs than others that from time to time have the care of a family. The laying in winter is a question of age, there is no breed whose property it is to lay in winter, and no adult fowl never does—only a pullet can be depended upon for winter eggs. There would be no reason why you should not keep some of each breed, Brahmas and Houdans. They are equally hardy. As non-sitters, we would say keep Houdans, were it not that in a confined space they sometimes take to eating each other's feathers. Where the space is a confined one, we know no fowl that gives us as much satisfaction as the Brahma; he has most of the virtues, and few of the vices of fowls in general.

Uniting Broods (*Novice*).—As the chicks will be so very nearly of an age, if you put the three at night under the other hen when her hatching is finished, we think she will accept them.

Bradford Columbarian Society (*H. A.*).—We conclude that it was a mere local show, as it was not advertised.

Book on Carrier Pigeons—Wing Bars (*F. Townsend*).—No separate work has ever, as far as we know, been published on English Carrier Pigeons, although there is a Belgian one on homing birds. No English fancy Pigeon has had the honour of a distinct book except the Almond Tumbler, upon which a work was published in 1802 and 1804. A Dun bird has no wing-bars, being a whole colour; a Silver should have brown bars; a Blue, black bars. The colours differ, so in our belief should the wing-bars. Silvers with black bars are a kind of washed-out Blues. Silver Duns, bars red. The colour of the bars should vary with the colour of the body of the Pigeon. To look for black bars on a Silver is as wrong as to look for black bars on a Mealy Ponter. To all common sense the bars should vary with the colour of the Pigeon; if they do not, the distinctness of a colour is lost.

Pigeon (*G. F. W.*).—The case does not possess the features which justify our publishing names. The vendor's characteristics of a Red-mottled bird may differ from the true, and yet you could not compel him to take back that you have paid for.

Raven's Wing Feathers (*Colin*).—The Raven has not moulted recently, and you need not care for the stumps. They will come out in due time. The bird will moult next autumn, and you will find, if you do not cut its wings at that time, it will fly away. New long feathers will then take the place of stumps.

Parrot Feather-eating (*J. T.*).—Cease giving hempseed, white bird-seed and peas. Such a diet may well make the bird's skin irritated. Bread soaked in water, nuts, and any fruit it will eat, and stalks of lettuce will probably reduce the irritation which makes the bird bite its feathers.

Judging Rabbits (*S. G. H.*).—No judge that we ever knew has given judgments that were never impugned; but because a Rabbit wins at one Show and is unnoticed at another, it does not follow that the second decision was wrong. We cannot insert more about the Northampton Show.

Bees (*P. T. B.*).—We do not know there was such a book you refer to.

Bees Fighting (*R. F.*).—We think there must be something wrong within that hive outside which the greatest amount of commotion prevails, and that the bees of your other stocks, or perhaps those of your neighbours, are endeavouring to take possession of what treasure it may contain. Perhaps the queen may have died, or have become supersannuated, in which case a stock is particularly liable to attempted invasion. Or it may be that, owing to the very ungenial weather which prevailed until lately, your neighbours' bees may have suffered from scarcity of provisions, and may be endeavouring to appropriate what belongs to your own stocks. We can account for the circumstance in no other than one of these ways, as we do not believe there is much likelihood of the bees of one family fighting amoog themselves.

Commencing Bee-keeping (*H. D.*).—We advise you to begin with common English bees. Buy a hive now if you can procure one; if not, buy a swarm in May. Neighbour's improved cottage hive is sold by the Messrs. Neighbour and Sons (see their advertisement in these columns); but you might pick up some second-hand hives cheaper by advertising.

Bees in Queenless Hive (*A Subscriber*).—We would advise you to fumigate with sulphur the bees in your queenless hive if only a few remain when your swarm is ready; but if there are many of them, you can utilise them in the following way—When your bees swarm put the swarm at once in the parent stock's place, then shift away this parent stock for a few hours till the bees have pretty well deserted it; next put it in place of your queenless hive, which you can set at some distance off in your garden, bottom upwards, in the full sun. Let the bees fly away and help to hatch out the young bees. You can then hive another swarm into the queenless hive when empty. The frames should not extend quite to the bottom, but to within a quarter of an inch of it.

Deserted Hive (*Burton Joyce*).—Your deserted hive will do very well to put your bees in, only see that all decayed and mildewed combs are cut out of it. A swarm would value the gift exceedingly, and ought, if an early May one, to throw a maiden swarm in June, or give you from 10 to 20 lbs. of honey.

Trout Spawn, &c. (*F. Graver Browne*).—Write about the spawn to Mr. Grove, Fishmonger, 33, Charing Cross, London, S.W. The price paid for Brahma and Dorking eggs varies according to the estimation in which the parent birds are held. Look at the advertisements in our Journal, and select those you prefer.

METEOROLOGICAL OBSERVATIONS,

Camden Square, London.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude 111 feet.

Date. 1872. April.	A.M.					In the Day.				Rain.
	Barometer at 32° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 ft.	Shade Temperature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	On sun.	On grass	
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 10	30.205	48.6	46.0	W.	48.0	65.6	38.2	100	22.8	—
Th. 11	30.098	54.2	49.0	S.W.	49.0	61.8	43.0	105.2	39.8	—
Fri. 12	29.805	59.3	53.0	S.	49.8	70.0	43.6	114.0	36.0	—
Sat. 13	30.197	54.6	47.8	N.W.	51.2	65.8	44.2	113.2	35.4	—
Sun. 14	30.254	54.0	48.3	W.	51.7	66.0	38.4	104.5	35.5	—
Mo. 15	30.141	54.4	50.2	W.	52.0	69.4	38.2	113.4	35.0	—
Tu. 16	30.086	52.8	46.0	N.	52.2	60.0	42.4	110.3	39.5	—
Means	30.112	54.1	48.7		50.5	65.5	40.6	109.5	36.0	—

REMARKS.

10th, 11th, 12th, and 13th.—Most beautifully fine, a bright warm sun, and scarce a cloud to be seen.

14th.—Rather dull and rain-like between 10 and 11 A.M., but no rain fell, and it was fine all the rest of the day.

15th.—Rather dull in the morning, but soon cleared off, and was a splendid day, though perhaps rather too warm for exercise in the middle of the day; rather cloudy at night.

16th.—Rather dull in morning, though fine after, and the wind having become north it was colder, especially at night.

The entire absence of rain during the week has forced up the temperature of the ground, the mean being very nearly 5° above that of last week; the temperature above ground has risen nearly 10°; but the nights have been rather cold, though not quite so cold as last week.—G. J. Symons.

Erratum.—On April 5th, Bar. should have been 30.298, not 29.298, which makes the weekly mean 30.157, instead of 30.014.

COVENT GARDEN MARKET.—April 17.

A week's fine weather has caused a marked improvement in the general trade, and a better attendance. Large consignments from the Continent come to hand nearly every day, as many as a thousand bundles of Asparagus passing under the hammer on the bye days, and the Lettuces are unusually good. Good samples of frame Potatoes of different varieties from the Channel Islands are now offered at prices ranging from 9d. to 1s. 6d. per lb. In old Potatoes none but first-class Regents have advanced.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples..... ½ sieve	2 0	to 6 0	Melons..... each	0 0	to 0 0
Apricots..... doz.	0 0	0 0	Mulberries..... lb.	0 0	0 0
Cherries..... lb.	0 0	0 0	Nectarines..... doz.	0 0	0 0
Cheatnuts..... bushel	10 0	20 0	Oranges..... ₱100	4 0	10 0
Currants..... ½ sieve	0 0	0 0	Pears, kitchen..... doz.	4 0	6 0
Black..... do.	0 0	0 0	dessert..... doz.	4 0	12 0
Figs..... doz.	0 0	0 0	Pine Apples..... lb.	6 0	10 0
Filberts..... lb.	0 6	1 0	Quinces..... doz.	0 0	0 0
Cobs..... lb.	0 6	1 0	Raspberries..... lb.	0 0	0 0
Grapes, hothouse..... lb.	10 0	20 0	Strawberries..... ₱lb.	8 0	20 0
Gooseberries..... quart	0 0	0 0	Walnuts..... bushel	10 0	25 0
Lemons..... ₱100	7 0	10 0	ditto..... ₱100	1 0	2 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes..... doz.	4 0	to 6 0	Leeks..... bunch	0 2	to 0 0
Asparagus..... ₱100.	4 0	8 0	Lettuce..... doz.	1 0	2 0
Beans, Kidney.....per lb.	1 6	2 6	Mushrooms..... pottle	1 0	2 0
Broad..... bushel	0 0	0 0	Mustard & Cress..... punnet	0 2	0 0
Beet, Red..... doz.	1 0	3 0	Onions..... bushel	2 0	4 0
Broccoli..... bundle	0 9	1 6	pickling..... quart	0 6	0 6
Brussels Sprouts..½ sieve	0 0	0 0	Parsley per doz. bunches	0 6	0 0
Cabbage..... doz.	1 0	1 6	Parsnips..... doz.	0 9	1 0
Capsicums..... ₱100	0 0	0 0	Peas..... quart	2 0	5 0
Carrots..... bunch	0 6	0 0	Potatoes..... bushel	2 0	4 0
Cauliflower..... doz.	2 0	6 0	Kidney..... do.	2 0	6 0
Celery..... bundle	1 6	2 0	Radishes.. doz. bunches	0 6	1 6
Coleworts.. doz. bunches	1 0	3 0	Rhubarb..... bundle	0 3	1 6
Cucumbers..... each	0 6	1 6	Savoys..... doz.	0 9	1 0
pickling..... doz.	0 0	0 0	Sea-kale..... basket	1 6	2 4
Endive..... doz.	2 0	0 0	Shallots ..... lb.	0 4	0 9
Fennel..... bunch	0 3	0 0	Spinach..... bushel	3 0	4 0
Garlic..... lb.	0 3	0 0	Tomatoes..... doz.	0 0	0 0
Herbs..... bunch	0 3	0 0	Turnips..... bunch	0 3	0 4
Horseradish..... bundle	3 0	4 0	Vegetable Marrows..doz.	0 0	0 0

POULTRY MARKET.—April 17.

The supply is somewhat increased, so is the demand, and prices are well maintained. We shall look now for more life and vigour both in wholesale and retail branches.

	s. d.	s. d.		s. d.	s. d.
Large Fowls	5 0	to 5 6	Partridges	0 0	to 0 0
Smaller ditto	4 0	4 6	Hares	0 0	0 0
Chickens	3 0	3 6	Rabbits	1 5	1 6
Goslings	6 6	7 0	Wild ditto	0 9	0 10
Ducklings	3 6	4 0	Pigeons	0 9	0 10
Guinea Fowls	3 0	3 6	Pheasants	0 0	0

WEEKLY CALENDAR.

Day of Month	Day of Week	APRIL 25—MAY 1, 1872.	Average Temperature near London. Day.	Night.	Mean.	Rain in 43 years.	Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock after Sun.	Day of Year.
						Days.	m. h.	m. h.	m. h.	m. h.	Days.	m. s.	
25	Th	Twilight ends, 9.31 P.M.	59.6	37.2	48.4	17	45 af 4	11 af 7	2 10	46 af 5	17	2 13	116
26	F		58.0	36.4	47.2	18	43 4	13 7	25 11	17 6	18	2 23	117
27	S		59.3	35.7	47.5	18	41 4	14 7	morn.	59 6	19	2 33	118
28	Sun	4 SUNDAY AFTER EASTER.	60.8	35.7	48.2	18	39 4	16 7	36 0	56 7	20	2 42	119
29	M	Anniversary Meeting of Zoological Society.	60.5	37.5	49.0	15	37 4	18 7	54 1	6 9	21	2 50	120
30	Tu		61.0	39.1	50.1	17	35 4	20 7	18 2	24 10	☾	2 59	121
1	W	Royal Horticultural Society, Fruit, Floral, and General Meeting.	61.4	39.2	50.3	16	33 4	22 7	48 2	47 11	23	3 6	122

From observations taken near London during forty-three years, the average day temperature of the week is 60.1°; and its night temperature 37.2°. The greatest heat was 81°, on the 28th, 1810; and the lowest cold 18°, on the 29th, 1861. The greatest fall of rain was 0.75 inch.

ROSE PROSPECTS.

AN looking round my garden last summer there were two objects which filled me with forebodings as to their future—the Roses, and Red Currant bushes; the former from the virulent attack of orange fungus under which they were suffering, and the latter from the equally virulent attack of aphis, or, as they call it here, "dolphin." I warned the "powers that be" that Currant jelly ought to be husbanded, for it would be difficult to get any fruit for it this year, and I thought to myself Roses will not be such a galaxy of beauty as they have been in former years; and I grieve to say I was no false prophet. I leave the Currant bushes, and will now give my view of the Rose question.

There are two classes of Rose-growers—those who grow for exhibition, and those who grow merely for their love of the Rose and for the ornamentation of their gardens. The former, whether dealer or amateur, looks upon his older Rose trees with comparative indifference; he has planted his Briars or Manettis, the dealer by thousands and the amateur by hundreds; their buds have been dormant, and are now starting up for their maiden bloom. It is in these blooms his hopes of success at the exhibition depend, and these have been, from the necessity of the case, out of the way of the horrid orange fungus, and their prospects depend not on the history of the past, but the probabilities of the future. On the whole they are literally free from the danger which assails the amateur who does not enter the "tilled field," and who is uninfluenced by the laudable ambition of being a cup-winner or prize-taker at any of our now numerous Rose shows held throughout the country.

It is of the general prospects of the Rose in the garden of the Rose-grower that I now speak; and I do not see how we are to have a good Rose show this season when I remember how tree after tree was stripped of its foliage, and thus the very lungs of the plant lost. I could not but fear for their future well-being, and now that the pruning has taken place I find my forebodings too true. I never cut out so much dead wood in my life, and I do not at all like the look of much that remains. I have talked with several friends who grow Roses as I do myself, and they tell me much the same. My friend the Rev. W. F. Radclyffe wrote to me that he had been obliged to cut away a large quantity of bad wood; this, then, forms one bad element in our prospects. The great increase of orange fungus and mildew I attribute to the long droughts of the past three years, and I cannot but hope that the abundant rains we have had during the last six months will have remedied this evil. I wonder, too, how many Rose-growers will have had to deplore the severe frosts, sun, and wind of the latter part of last month. I have seen many places where the plants have all been burned as if fire had passed over them, and this will also interfere with a good bloom; for the plants having been so very forward, the severe weather has told on them much more severely than it would have done in ordinary seasons. I shall be very agreeably disappointed if after all this severe handling my own bushes, and those which I have elsewhere seen, do as they have done in former years.

With regard to new Roses I have but little to say. My estimate of several of those brought out during the last two or three years differs from that of some of my friends. I do not think so highly of Edward Morren as Mr. Radclyffe does; as I have seen it, it is too uncertain, and is, moreover, somewhat coarse. Madame Chirard I have never to my knowledge seen. Rêve d'Or I think a decided acquisition to our climbing Noisette Roses. Amongst the Tea Roses, there have been some very pretty additions in such flowers as Belle Maconnaise, Belle Lyonnaise, Madame Gaillard, Coquette de Lyon, and Mont Blanc. Some of the Roses of the present season promise well, but of their performances we shall have more to say by-and-by.—D., *Deal*.

COCKSCOMB CULTURE.

SEEDS should be sown early in this month in well-drained pots or pans, and placed in a little bottom heat. As soon as the seedlings come up put them into a cool place for a few days to strengthen, otherwise they will grow weak. When they are about an inch high put them in 60-sized pots, and plunge them in bottom heat. For this a bed of fermenting material should be prepared; manure will do, but I prefer tan, as manure is apt to ferment too strongly, and prove destructive to the roots. When these are well established give another moderate shift, and keep the plants as near the glass as possible, as the dwarfer they are grown the better. Keep the plants close for a few days; the heat may range from 80° to 90° by day. Give a little air during hot sunny days, close early, damp or syringe the plants, keep them well watered, but let the drainage be good. Give the plants a third shift into 8 or 10-inch pots, and treat them as before.

The compost I prefer is rich turfy loam, with one part decayed cow dung; add a little leaf soil and silver sand. With this compost I have found Cockscombs do well. After the comb is made they may be placed in a cool temperature, and with the above treatment the plants will make a good display in autumn.—W. ASHFORD, *Southend Gardens, Darlington*.

SPHÆROGYNE LATIFOLIA CULTURE.

AMONGST fine-foliaged plants there are few that are equal to the above for effect for stove decoration. It is strictly speaking a tender stove plant, and therefore cannot be used generally as a decorative one without considerable risk being run of seriously damaging or losing the plant. The fine, large, quilted leaves are admired by all, and few plants are more effective than a well grown and clothed plant of this on an exhibition stand.

To grow it successfully plenty of heat and moisture are necessary, but it does not require so much pot-room as one

would imagine a plant with such immense foliage would. At the present time I have a nice specimen of it 5 feet high, pot included. There is one drawback in the cultivation of this plant, which is, that after having grown a specimen to the size I have mentioned above, you cannot kept it perfect for any length of time. The best method I have found is to take the tops out of the old plants; they will then throw out side shoots, which should be cut off with a sharp knife below a joint and inserted in a thumb pot in a mixture of peat and sand, and then placed under a bell-glass where they have a strong bottom heat. Water them occasionally, and they will take root readily. By striking a couple or so of cuttings each year you may always have a good plant to look at.

It is free-growing, and requires a temperature of from 65° to 75° to grow it successfully. The house must be provided with a roller and blind, as it does not like too much sun on its foliage. I always grow it in a mixture of peat and loam in equal quantities, with a free admixture of silver sand, and I frequently add a few lumps of charcoal. When established it requires a liberal supply of water of the same temperature as the house it is grown in; and if large specimens are required they should be frequently shifted into larger pots. An 18-inch pot is ample to produce a large specimen. In shifting from small to larger-sized pots, never allow the plant to become pot-bound. If so, it often happens that all the bottom leaves drop, and the plant is ruined as a specimen. Syringe the plant morning and evening in the spring and summer months, and in the autumn and winter once a-day in the morning. Direct the syringe under as well as over the foliage, and keep the plant clear of all others. It is not a troublesome plant to keep clean, and if it is frequently syringed as recommended above, it will rarely be infested by any insects, and there will be little trouble beyond being very careful of the foliage.—T. B.

THE PRIMROSE.

Mr. Robson has not said a word too much in praise of Primroses; and as there is rather a rage for this flower at present, perhaps I shall be excused for a little enlarging on his remarks.

I attach great importance to his advice with respect to dividing the roots. I am convinced it is the only way to keep the plants permanently in health. Those kinds which I use for spring bedding I divide as soon as they are out of bloom and plant on a north border, which is the best position for them during the summer. I keep, besides, a very long border full of every different kind, which I watch carefully to see that I do not lose any variety I think worth procuring.

As Mr. Robson says, there are endless varieties of the single red. Many of them are quite worthless for spring bedding, as they produce more leaves than flowers. Others are very good. I have at present a very floriferous one in bloom, a bright red with a yellow eye, which makes a pretty bed; and I have one seedling which will be very telling if it flower freely, as it is of the brightest of crimson. By far the most valuable Primrose, however, as a bedder that I ever saw, is one of which I found a plant two years ago in a cottager's garden, where it had evidently sowed itself. It caught my eye at once, being one solid mass of bright magenta with a yellow eye. I know of no Primrose nearly so free-flowering. It is extremely early, and comes in with Crocuses, making a beautiful contrast with the yellow Crocus; in short, it is so good that I have determined to send it out.

Primroses and Oxlips seem to run one into the other in the most curious way. I suppose that whenever we find a bunch of flowers on a single stalk we must call that an Oxlip; but the crimson Primrose which I have spoken of sends up its flowers on distinct stems, but just as it is going off it sends up bunches, so I am not sure whether it should be called a Primrose or an Oxlip. There are two Oxlips which are quite the *spécialité* of this neighbourhood—at least I never saw them anywhere else—one is a large white, a most abundant bloomer, the other a double yellow, equally valuable. Both make capital beds or edgings.

Now about the double Primroses. Mr. Robson has condemned them too much. We have the lilac, the mauve, the early double white, the late double white (this last very rare and very hard to increase), the early double yellow, the late double yellow, and the Pompadour, or deep maroon. What a lovely one is this last! It is getting very scarce; but if it be constantly divided, and supplied with liberal top-dressings of well-rotted manure and leaf mould mixed all through the summer, and well watered, it will increase rapidly. I find that all the family like plenty of vegetable mould, and rather a shady situation during the summer. If your correspondents can tell me of any double variety besides those I have noticed they may depend on my gratitude.—D. F. J. K.

ROYAL HORTICULTURAL SOCIETY'S BIRMINGHAM EXHIBITION.

The Exhibition will take place at the Lower Grounds, Aston, in June next, and will continue from June 25th to 29th inclusive. It will be opened by His Royal Highness Prince Arthur.

The area devoted to the purposes of the Show is about twelve acres in extent. The Exhibition will be held in tents, but on a totally different scale to those in which flower shows are usually held. The chief display of Palms, Tree Ferns, and the more important stove and greenhouse plants, &c., will take place in a lofty tent 300 feet by 80 feet wide, erected over a beautiful garden, designed by Mr. Gibson, of London. At one end there will be a fountain and rockery, over which a cascade will fall. Picturesquely grouped beds, covered with turf, will be arranged over the entire length, and these will be divided by wide gravelled walks. The beds will vary in elevation, so as to prevent flatness, and to aid in giving the *ensemble* an air of naturalness. On these beds the plants will be staged. Outside this tent there will be several others. The show ground is triangular, the sides being nearly 400 yards long, with a base of about half the length. The sides will be occupied by uniform ranges of shedding, covered with canvas, but open in front, facing the centre of the ground; the whole being intended for the accommodation of exhibitors in the industrial department, which includes horticultural tools, garden machinery, garden cutlery, &c.,; while greenhouses and heating apparatus, garden wirework, garden pottery, vases, and decorative appliances, including seats, arbours, tents, &c., will be grouped in the open space.

Coming now to the prize list. For various kinds of plants, £981 11*s.* is offered; for cut flowers, £263 5*s.*; for fruit, £155 1*s.*; for vegetables, £153 19*s.*; for implements and horticultural buildings, medals to the value of £105 5*s.*

Of course it would be impossible, in the limits at our disposal, to attempt anything like an account of all the classes; and we shall, therefore, content ourselves with an enumeration of some of the principal ones. A large portion of the prize list is properly devoted to stove and greenhouse plants in collections, for varieties of specified kinds, and for specimen plants; the major part of the prize money being very judiciously offered for these classes. Ferns, too, are adequately encouraged. For Pelargoniums a large sum of money is appropriated, and the classes are so arranged as to ensure good displays of all the best old and new varieties. These exhibits will all be brought together on the first day. Then there are good prizes for evergreen trees and hardy shrubs; for variegated plants suitable for bedding; for sub-tropical plants; for Alpines; Succulents, &c. For dinner-table decorations a large sum is reserved, with the additional novelty of the designs being exhibited by gas-light during the bright sunshine of a midsummer day; the object being to ensure the combination of such flowers and plants as are most telling in artificial light. For fruit there is ample provision; while vegetables—important and useful to everyone—are recognised and cared for in a fashion far a-head of anything we can remember. The queen of flowers will, on the third day of the Exhibition, hold a special levée; and as the prizes are large and well-arranged, we quite expect such a display as will surpass those with which visitors to our annual Rose Show are familiar. Special exhibitions of cut flowers and bouquets, on the fourth and fifth days, are provided for, so as to secure elements of freshness, and to maintain the interest of the meeting to the very close.

If the arrangements determined upon prove satisfactory, the meeting at Birmingham will be hereafter distinguished as having secured the most complete exhibition of horticultural implements ever seen in England. When the country meetings of the Royal Horticultural Society were held at the same times and places as those of the Royal Agricultural Society, manufacturers and others made their entries as usual for the agricultural implement showyard. At Birmingham every effort will be made to increase the attractions and useful character of the Show in the very important division to which we are referring.

Already ample evidence has been given by the numerous applications for space that all our leading implement manufacturers will take care to be well represented in Mr. Quilter's spacious grounds.

Mr. Joseph Moore, of Pitsford Street, Birmingham, is now engaged on the medal for the Local Committee. The obverse will contain a likeness, in profile, of Prince Arthur, reproduced from a photograph for which His Royal Highness gave sittings to Mr. H. J. Whitlock, at Buckingham Palace, on the 2nd inst. The reverse will be occupied by a view of Aston Hall, together with an inscription setting forth the date when that picturesque park was opened by Her Majesty as a place of public recreation for the people of Birmingham. The diameter of the gold medals

will be 1½ inch, and of the others 2 inches.—(*Midland Counties Herald.*)

I HAVE now before me the "Code of Regulations," which, for all practical purposes to exhibitors, are about as open and undefined as it is possible to frame them. Permit me to illustrate my meaning by supposing that eight builders compete, and that each exhibits a distinct and separate class of building. Builder No. 1 exhibits, say, a conservatory; No. 2, a lean-to vinery; No. 3, a span-roof greenhouse; No. 4, a Cucumber and Melon house; No. 5, a length of Peach-wall covering; No. 6, a Pine stove; No. 7, an orchard house; and No. 8, an improved form of Strawberry house. Now, in the absence of any second or corresponding structure to one of the foregoing, there can be no comparison, and I respectfully submit that no judge could be able to decide, in the terms of the "regulations," which is "the best horticultural building," or which would be entitled to an award. The fact is, each and every house would be "best" for the respective purposes for which it was intended, but would necessarily be disqualified from receiving the medal because there was no similar house with which to compete.

In order to remedy this anomaly, why not separate iron from wooden houses under schedules A and B respectively, and then sub-divide each schedule into classes, and enumerate what houses each class shall embrace? Every builder would then be at liberty to elect into which class he would enter.

With respect to the date of entries, this should be confined to some definite period prior to the Show, when each applicant exhibitor should be apprised by the authorities whether or not sufficient applications had been made to constitute a competition in such particular class, and if not, then such exhibitor would have an opportunity to apply to enter into another class. Of course, if he decide to remain a solitary exhibitor in any one class, with a view of obtaining "honourable mention" or a "special certificate" for what he considers a novel and meritorious production, so far so good, as it would be purely optional with himself. But if an arrangement somewhat similar to the foregoing were made, exhibitors would have a better idea what they were competing for. It would also tend to inspire confidence, whereas now all is uncertainty.

Again, why should not specific and suitable awards be made for a display of plans, models, machinery for ventilating, detached ventilators, door and sash fastening, modes of shading, and construction of stages? These are surely open to improvement, and deserve some notice.—S.

VEGETABLE AND FRUIT GROWING.

(*Continued from page* 334.)

HERE I would remark how much the unsettled and hand-to-mouth position of agricultural labourers of the present day militates against the best cultivation of their cottage-gardens and allotment grounds, and the propagation of fruit trees. In Cheshire, where labourers are almost permanently established in their cottages, it is not an uncommon thing for them to pay their rents and something more by the sale of the surplus fruit crops; for they use a great deal themselves. And here I would observe that the Damsons grown in this county, principally in the farmers' and cottagers' gardens, are like their famed cheese, which cannot be produced elsewhere "unless," as was quaintly said by an old county historian, "you take not only the kine and the dairywomen, but the land also;" for in size and flavour they are not approached even by the best products of Kent. They are not known in the South any more than their best cheese, because there are too many people with long purses in the Lancashire and Yorkshire manufacturing towns to allow them, or almost any other good thing, to leave the districts. This is another proof of the peculiar ingredients possessed naturally by different soils and subsoils; and as no economic process can alter the latter, though you may the former, deep-rooted plants and trees must always take their character from the natural geological formations. In my own district, on the Bagshot sands, we can grow very good Strawberries, but we are obliged to cart the Strawberry loams from other districts to do so; and our white sands and black peaty soils are being constantly carted away to grow deciduous plants elsewhere. The only transposition of soils that will pay practically is when found on the spot, and either in the formation or renewal of orchard or market-garden ground may be profitably resorted to; thus in double-spit work a good rich clay, marl, or gravel may be brought to the top; or if not good enough for this, it may be simply turned over. In three-spit work it may be dealt with in three ways—brought to the top, placed in the middle, or simply turned over.

Trenching and deep draining, if necessary, of one kind or another, is the basis in the formation of all orchards and market gardens. The next important step is the proper stocking with trees suitable to the soil, and for the purposes required, whether for conversion into cider and perry or for dessert; and, in the case of market gardens, the adoption of a rotation by which a succession of crops can be obtained without plants of the same tribe following one another. The original cost of forming orchards and market-garden grounds is very various, but in amount it is pretty much alike, because in the cider districts, where grass is allowed to grow amongst the trees, it is regularly manured and mowed, and in suburban districts the land is highly cultivated. The minimum cost of formation and stocking I have found to be about £30, and the maximum £50 per acre, and in exceptional cases I have known it twice as high. The rents vary from £5 to £20 per acre. The latter sum appears high, but an occupier in Bermondsey who paid £16 an acre and all rates and taxes, to whom some years ago I let a farm eight miles from Covent Garden, at a third of that rent, lamented that this was being curtailed by buildings, as he said it was the most profitable land he occupied. The returns from land of this kind, and from orchards round the metropolis, or at greater distances, are so fluctuating that it is no guide to quote them. I have known the produce realise £150 an acre, and in other seasons barely the cost of production, which, including rent and interest of capital, seldom runs short of £30 an acre on well-managed ground.

One great drawback to growers is the smallness of wholesale prices in proportion to those at which their goods are retailed. Last year I question if they averaged one-fourth; and yet consumers complain, and say the cost of vegetables is a grievance in every household. Many small growers protect themselves by "standing the market" themselves, and the larger farmers have special agents, old, proved, and trusted foremen, or some one interested in their profits; but there is still a very large class who are obliged to trust to salesmen, who charge their 10 per cent. in the fruit and vegetable, and 5*s.* per ton in the Potato markets, and be content to take what residue they can get. A novice in the trade, or an amateur, has no chance in the London markets, however successfully he may grow the articles required; and it is a question whether consumers have not an adequate inducement to establish co-operative stores in their respective districts. The following articles, which were sent from one moderate-sized garden in Fulham to the London market in one year, will show the amount and variety of articles it takes to make up a market gardener's returns:—

Forced Radishes	5,000 punnets.
Natural ditto	288,000 bunches.
Greens	360,000 ditto.
Cabbages	312,000 heads.
Wallflowers	4,800 bunches.
Moss Roses	9,600 ditto.
Hand-glass Cauliflowers	4,800 heads.
Asparagus	600 bundles in a single day.
Lettuces	200,000 in one month.

(To be continued.)

THE NEILL BEQUEST.

DR. PATRICK NEILL, of Edinburgh, left by his will a sum of £500, the interest of which, after accumulating for two or three years, has to be voted by the Council of the Royal Caledonian Horticultural Society to some distinguished horticulturist or botanist. This year the sum so accumulated, amounting, we understand, to £65, has fallen to the lot of Mr. Andrew Turnbull, gardener to the Earl of Home, at Bothwell Castle (where he has been upwards of forty years)—one highly esteemed both for his personal qualities and professional skill, and to whom we are indebted for the raising of several of our best Cape Heaths, as Bothwelliana alba, Marnockiana, and Turnbullii. We notice this award the more particularly because the existence of the bequest appears not to be widely known, and further, because Dr. Neill was one of the first to cheer us on our course, and that at a time when such encouragement was most needed. Born at Edinburgh, he died on the 5th of September, 1851, in his 75th year. We append the following account of his life from the seventh volume of our old series:—

"Dr. Neill was by profession a printer, his office, one of the oldest in Edinburgh, being in one of those ancient narrow closes or alleys which descend from the High Street to the Cowgate in that city. Latterly his business was conducted chiefly by a partner, and the Doctor devoted his time principally to literary pursuits, in connection with his favourite study of horticulture. Essentially a tradesman, yet the Doctor was a most gentlemanly personage, and exemplified in his life what may be done in the way of uniting business with literature. The Doctor was several times a member of the civic corporation of Edinburgh, and was noted for his placid temperament and conservative views. Usually sagacious, he was also a little odd in some things. For old-fashioned abuses he had a sort of veneration; a gentle retiringness of character, perhaps, disposing him to fear changes, even seemingly for the better. The Doctor lived most of his life in a curious out-of-the-way house within a garden at Canonmills, a suburb of the New Town of Edinburgh, and here he amused himself with his horticultural operations, and two or three domestic pets, such as a venerable gull, which was allowed the range of the enclosure. The Doctor was a bachelor, and scrupulous in personal neatness. He wore a well-brushed brown wig; his face was always as if fresh shaven from ear to ear; he firmly adhered to the white cambric cravat of past times; and

in walking, used a gold-headed cane of the right old sort. In truth, the Doctor was a "character," but an amiable one. He was a fine relic of the old gentleman, neat, courteous, and conservative with that degree of enthusiasm in pursuing his favourite study of horticulture, which placed him above the ordinary stamp. At the period of his death, the business of 'Neill & Co., printers and typefounders,' was one of the most respectable in Edinburgh."

This was the tribute of one friend, that of the second was as follows :—

"I had the privilege of knowing Dr. Neill personally, and a great privilege it was. He was the man of a century, and was most devoted to the study of every branch of natural history. To the day of his death he was the head of, perhaps, the largest printing and typefounding establishment in Scotland, and although he was assiduous in business, he always found time sufficient to pursue his favourite science. Those who are grandfathers and grandmothers now in Edinburgh number among their earliest associations Dr. Neill's garden, and a curious little garden this was. It was a perfect Noah's Ark, and more than that, for Noah had no plants in the ark. Here might be seen eagles, owls, a fine specimen of the snowy owl, Passerinæ, Gallinaceæ, Grallatoriæ, &c., and within-doors innumerable specimens of parrots and cats. The Doctor was a bachelor, and his sister a spinster. His garden contained botanical curiosities rather than showy plants. In the greenhouse were cultivated such plants as Myrtus Pimenta, Cinuamomum verum, Laurus Camphora, Coffea arabica, some Orchidaceæ, and altogether a very interesting collection of stove and greenhouse plants. Out of doors were some interesting herbaceous and Alpine plants, with fine specimens of ornamental trees and shrubs. The garden was situated at Canonmills, on the way from Edinburgh to Newhaven; and about sixteen years ago, when the Edinburgh and Leith railway was projected, it was intended to destroy the Doctor's dwelling and demolish his garden. He, however, prepared a petition, procured a plan of the garden, with an enumeration of its contents, and proceeded to London, where, in the House of Commons, he secured such opposition to the project that the railway company had to alter their plans and form a tunnel, even at some distance from Dr. Neill's house. As is well known he was a great naturalist. He maintained a long correspondence with Baron Cuvier and other illustrious men on the Continent. He was one of the founders of the Plinian Society of Edinburgh, and for many years walked twice or three times a-week to the Frith of Forth to observe the action of the tides. His garden and dwelling-house were situated on a level with, and by the side of, a large stagnant pond, which was continually green with Confervæ and Duckweed, and was the source of many fevers and malaria; but the Doctor for many years strenuously and successfully opposed the authorities in their endeavours to have this pond drained, his heart yearning for the fate of a very large and handsome specimen of Weeping Willow, which having extended its roots under the garden wall, for years imbibed the sweets of the Canonmills pond.

"To a highly cultivated and well-regulated mind he added a kindly disposition and a genuine modesty, which greatly enhanced the value of his general deportment. In his moral character he was temperate, friendly, consistent, and truthful. As a man of business Dr. Neill was uniformly open, honourable, and accommodating, willing to yield a great deal for the sake of peace, but possessed of a sufficient share of firmness when an attempt was made to overreach him or to act in a stealthy manner towards him. As a friend he was candid, judicious, and conciliatory. As a citizen, the town of Edinburgh lost a clear-sighted and determined supporter. Whether to establish an experimental or zoological garden, to decorate the North Loch, or to protect the Flodden Tower, Dr. Neill was ever ready and willing with his pen and his purse to promote every useful improvement, or save from ruin time-hallowed relics. The merits of Dr. Neill as a man of science were very generally acknowledged. His published labours as a horticulturist, botanist, zoologist, and geologist, bear but a small proportion to his private efforts to advance the interest of natural science—as secretary of the Wernerian Society, as the patron of rising merit, and as ever ready to offer the warmest sympathy to congenial spirits."

FLOWERING LILIUM THOMPSONIANUM.

My object in sending the Lilium Thompsonianum to the Committee meeting of the Royal Horticultural Society on the 17th inst. (marked in your report as "contribnted by Messrs. Barr & Sugden"), was partly to exhibit a Lilium not often seen in bloom, but chiefly to elicit some practical observations as to the best method of inducing it to flower. As both time and space necessarily limit the length of your reports, I shall be glad to know if any of your readers have been successful in blooming this Lily, and the treatment given.—A. Rawson, *The Vicarage, Bromley Common.*

[When our reporter made his notes Mr. Rawson's specimen was placed without a distinctive label by the side of Messrs. Barr & Sugden's Narcissi. We sent for full information to that well-known cultivator of the Lilies, Mr. G. F. Wilson, and he has obliged us much by sending the following reply :—"L. Thompsonianum has appeared at South Kensington twice before. A plant in large bud was sent to me by Mr. Leichtlin, of Carlshrue, in 1868. It flowered in the South Kensington conservatory, and was exhibited at the next Committee meeting. If I remember rightly, Major Trevor Clarke exhibited a plant in bloom about the same time. Mr. Rawson's plant, though not very tall, was very well bloomed. I rather wondered at the time that it had not more notice from the Floral Committee, especially as I saw one 'liliomane' at the table. The communication to me from Mr. Leichtlin is this: 'Now, what with Thompsonianum. I plant my largest bulb in a 7-inch pot in good substantial loam, say the bulb to be as large as *fig.* 1. I favour in every way the growth of the long

Fig. 1.

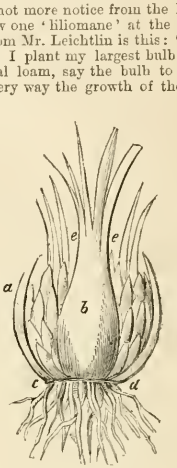


Fig. 2.

leaves, and in December and February or March, two to three times, I cut off all offsets. The bulb presents the appearance represented in *fig.* 2, in which *a* is the outer scale of the old bulb, and *b* the new bulb in formation. The space between *a* and *b* is filled with offsets, feeding on the old and new bulb, and preventing the sound formation of the latter. These must be cut off. I lay the bulb bare, and cut with a sharp penknife in the direction from *e* to *c* and *d*, cutting all off, sparing carefully the forming new bulb and the root part *c*, *d*. The result is that I get a bulb of the size of a small egg, which is a good flowering size. Next year the bulb may flower, but this is not sure, and sometimes it may fail; then an amateur's patience is tried, and I myself begin anew. I never counted more than eleven leaves to a flowering bulb. The side shoots then appear very soon, but ought not to be cut away, because these also will flower.' "]

GARDEN NOMENCLATURE.

"Call a spade a spade."

I am induced to send you my experience, that some of my fellow readers of our Journal may have a chance of agreeing with me in the appreciation of the above advice, which in the opinion of some might appear unnecessary. My gardener found that a very large plant of Cereus Mallissoni during its stay in winter quarters, where he could not easily examine it, was much infested with mealy bug, and as it is almost impossible to touch them by hand work amongst the dense clothing of hair and spines with which the flower-tubes are covered, he begged to be allowed to try a bottle of "nicotine." It was ordered at once, as the name led me to anticipate some wonderful preparation of tobacco, and the idea was somewhat strengthened by the delay in obtaining the article, during which our enemies increased and multiplied. When, at length, the bottle arrived, I was considerably astonished to find that it was apparently nothing more than common naptha or pyroligneous spirit considerably reduced with water, so as to prevent injury to the foliage. Upon this latter point I cannot speak quite certainly; I tried it on a portion of a large leaf of a Gloxinia

which appears uninjured, but my gardener used it to some buds of a younger plant and they are destroyed. When you catch your mealy bug and touch him with it, I can safely say that its effect is "mortally strong," but to those amateurs who have been or are troubled as I have been, I say that there will be a considerable saving by purchasing the pure article and diluting it according to their requirements, instead of sending for it under its more magnificent title to which it has no claim.

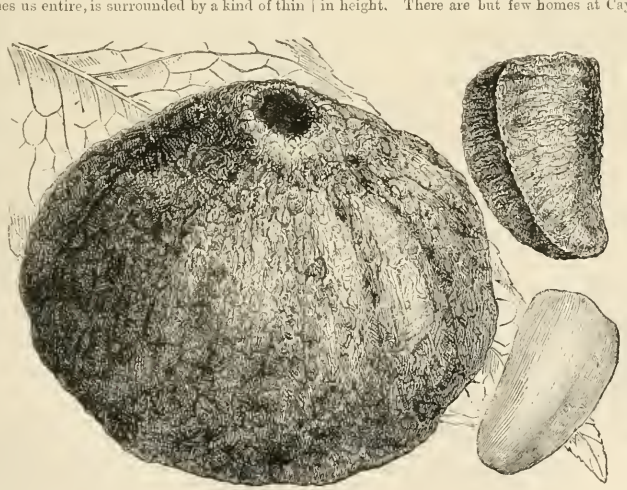
So much for the first case which chiefly touches the pocket; the second is more productive of serious disappointment, as it requires time and the expenditure of care and anxiety before you can find out the mistake. I allude to the fact of giving descriptive names to plants without duly considering if the names are really appropriate. I have a tolerably large collection of Cacti, and two years ago I purchased a plant advertised as "Atrosanguineus, being the darkest scarlet out." Now that the plant has flowered I find that of six or seven scarlet Cacti it is the very lightest. Another plant, Cereus albus, which I have watched with much interest for two years, has now flowered, and is of a darker colour than my old plant Cereus pallidus roseus. Many years ago I was induced to procure Gardenia Stanleyana, from the description of it in Paxton's "Magazine of Botany," vol. xiii., fol. 169, "that the noble highly fragrant flowers are produced in greatest profusion." The description is correct, with the important exception that it has no smell. Again, I grew Pergularia odoratissima, as Mrs. Loudon in her "Ladies' Companion to the Flower Garden" says, "This plant has perhaps a sweeter fragrance than any plant known." My plant agreed in all particulars with the description, except that it had no perceptible fragrance either by night or by day.

Now, I believe that the gardener can only have three objects to attain—to gratify the eye, the nostril, or the palate; and whilst it is quite true that "the Rose by any other name would smell as sweet," and doubtless the Onion by any other name would taste as strong, so that generic names are of comparatively less importance, I think that all names professing to be descriptive should be most carefully chosen; for it is a matter of real disappointment to find, after bestowing much time and attention on the cultivation of a particular plant for the sake of contrast or any special purpose, that the object is quite defeated. But I will not occupy your space further, although I have many minor instances. I only hope that a little more attention may be paid to the subject, so that whilst we can always help ourselves by receiving advertisements with a certain amount of reservation, we may be protected against the freaks of those who advertise their new soil-cultivators, and when, from the price, you expect a small steam plough, supply you with a spade with a new-fangled handle!—C. M. Major.

P.S.—Whilst on the subject of misrepresentation I may as well call your attention to the picture of Primula japonica figured in the "Florist and Pomologist" for June 1871, and I shall be glad to know if it is really true that the whole flower-spike can be developed as there shown (for I do not believe it), or whether it is the artist's license? If the latter, I do not think that such license should be tolerated.—C. M. M.

THE BRAZIL NUT.

The fruit of the Bertholletia excelsa is commonly called the "Monkey's Pot," which name is also given to the Lecythis ollaria. This arises from the fact that its form suggests that idea, and because the monkeys eagerly devour the seeds contained within it, drawing them out through an opening at the top of the fruit, which they enlarge if necessary. The fruit, which seldom reaches us entire, is surrounded by a kind of thin green shell, at the bottom of which is an exceedingly hard woody covering, enclosing a number of irregularly triangular seeds not unlike a slice of a Melon cut away a little on one end. These seeds are shut up in a woody, wrinkled, brown coat, which, though rather thin, is very tough. When fresh they are good to eat, having a flavour somewhat like that of the Hazel-nut or Walnut; but as they become old the decomposition of the large amount of oil they contain causes them to taste rancid.



Fruit of Bertholletia excelsa.

According to Humboldt and Bonpland the fruit is about the size of a child's head, being from 3 to 5 inches in diameter. Some are oval-shaped, and others rounded but depressed above and below. The fruit consists of a woody capsule, valveless, covered with a thick fleshy rind, which shows slight traces of four or five rounded angles that it had in its ovarian state. The lid at the top is very small, and, unlike that of the fruit of the Lecythis, falls inside the capsule instead of outside. When the fruit is ripe, and the partitions of the cells have gone, there appear sixteen to twenty bony, wrinkled, kidney-shaped seeds, a little flattened on the inside. The kernel consists of a fleshy, whitish, inseparable, homogeneous substance.

In December, 1821, "I saw the Bertholletia flowering at Cayenne. This was the second time it had flowered, but no fruit arose therefrom, which was most likely due to the youth of the plant, although it was then twelve years old and 40 feet in height. There are but few homes at Cayenne which have not some of these trees. The fruit which I have examined and drawn came from Brazil. The Portuguese of Para send yearly a large quantity of the seeds of the Bertholletia to Cayenne under the name of Touka, and this name has been also given to the trees which have sprung from them. These seeds are sold at the Cayenne market. As long as they are fresh they are as good as our sweet Almonds, but they turn rancid very quickly." These fruits, which are called also Brazil Chestnuts, and to which the natives give the name of "invia," furnish a very large amount of oil for burning.

This is what M. Bonpland has to say about it:—"We have been very fortunate, M. Humboldt and I, in finding some of these kernels during our voyage upon the Orinoco. For three months we lived only on bad chocolate, on rice cooked in water, always without butter and often without salt, until at last we got a large number of the fresh fruits of the Bertholletia. It was in June, and the Indians had just made a harvest of them. These kernels are of a most exquisite flavour, especially when they are fresh. The tree came originally from

Brazil, but it is also to be found in Spanish America, where it forms forests upon the banks of the Orinoco."—(*Revue Horticole.*)

WILD FLOWERS.

Sandhurst, Hawkhurst, Kent.

I THANK "Mary Gold" much for her kind criticism, and have great pleasure in sending a list of the wild flowers I have gathered up to the 18th of April.

March 7. Common Meadow Rush (Luzula campestris)
Common Mouse-ear Chickweed (Cerastium vulgatum)
Major Stitchwort (Stellaria Holostea)
„ 8. Thyme-leaved Speedwell (Thymus serpyllifolia)
Cornfield Stachys (Stachys arvensis)
„ 9. Common Coltsfolt (Tussilago Farfara)
Ground Ivy (Glechoma hederacea)
„ 13. Golden Saxifrage (Chrysosplenium oppositifolium)
Goldilocks (Ranunculus auricomus)
„ 14. Small Wood Rush (Luzula pilosa)
Germander Speedwell (Veronica Chamædrys)
Grocers' Mustard (Sinapis nigra)
„ 18. Mistletoe, male flowers (Viscum album), on Hawthorn and Sycamore
„ 19. Jack-by-the-Hedge (Alliaria officinalis)
„ 23. Frog-wort (Ranunculus hederaceus)
Cow Parsley (Anthriscus sylvestris)
April 1. Blackthorn (Prunus spinosa)
Early purple Orchis (Orchis mascula)
„ 2. Wild Cherry (Cerasus avium)
„ 3. Common Ash (Fraxinus excelsior)
Adder's-tongue Fern (Ophioglossum vulgatum)
„ 7. Yellow Avens (Geum urbanum)
Marsh Marigold (Caltha palustris)
Herb Robert (Geranium Robertianum)
Ivy-leaved Speedwell (Veronica hederæfolia)
Hedge Vetch (Vicia sepium)
Common Plantain (Plantago lanceolata)
Red Currant (Ribes rubrum)
Teesdale's Cress (Teesdalia nudicaulis)
Thale Cress (Sisymbrium Thalianа)
Early Yellow Rocket (Barbarea præcox)
Common Sorrel (Rumex Acetosa)
„ 9. Yellow Dead Nettle (Galeobdolon luteum)
Wild Strawberry (Fragaria vesca)
Red Robin (Lychnis dioica)
Bluebell (Hyacinthus non-scriptus)
„ 12. Shepherd's Needle (Scandix Pecten-Veneris)
Broom (Spartium scoparium)
Common Bugle (Ajuga reptans)
Pale Sylvan Speedwell (Veronica montana)
White Dead Nettle (Lamium album)
Hawthorn, May (Cratægus Oxyacantha)
„ 17. Lords and Ladies (Arum maculatum)

I have this time given the common names of my flowers, and quite agree with "Mary Gold" that they are preferable for general readers, always providing the Latin names are added—alone I think them useless. Last summer I assisted a young botanist in collecting and preserving wild flowers with a view to her understanding at least the outlines of the natural system. She was charmed with the amusement of classing exogens and endogens, when a friend gave her the Grass of Parnassus. I could only explain that the English names were of no use in the study of botany, as in many cases they only tended to mislead the student. I should be charmed to exchange dried flowers with "Mary Gold."—Fraulein, *Botanist.*

OUR FIRST DISH OF UNFORCED ASPARAGUS.

The Asparagus beds at this place were made in 1848. They are on the Isle of Thanet sand, which contains a portion of alumina, and are still after an interval of twenty-three years as productive as ever. I have during this period annually noted the date of our first dish of Asparagus, which, as indicating the forwardness or lateness of the season by the produce of a *fixed* bed, is not perhaps without some interest. From this retrospect we see that with one exception (1859), this year gave us the earliest dish in the last twenty-three years. We had the first dish in

1850	April 17	1861	April 21
1851	„ 25	1862	„ 23
1852	„ 28	1863	„ 18
1853	May 15	1864	„ 17
1854	April 17	1865	„ 17
1855	„ 22	1866	„ 26
1856	„ 27	1867	„ 22
1857	„ 22	1868	„ 14
1858	„ 28	1869	„ 23
1859	„ 9	1870	„ 21
1860	May 2	1872	„ 11

—Cuthbert W. Johnson, *Croydon.*

The Fashion of Wearing Button-hole Bouquets came, like most other fashions, from France. A young and very pretty girl conceived the idea of standing with a basket of flowers on the steps of the Jockey Club, and presenting to each member a single flower as he passed. The plan proved eminently successful, and Mdlle. Isabelle became quite the rage. From that time a flower in the button-hole became quite an institution, and finally developed the button-hole bouquet.

NOTES OF A VISIT TO MESSRS. CARTER & CO.'S SEED FARMS.—No. 2.

Of Chrysanthemum carinatum, or tricolor as it is commonly called, there were several varieties, and though the flower is a little coarse, and therefore objectionable in certain positions, the colours are so gorgeous that in large beds and borders it has a brilliant effect. Venustum, about 15 inches in height, crimson and white; Burridge's; and a large white kind with an orange centre, may be especially noted. The pretty little Nemesia compacta alba was producing a great profusion of flowers, and so were Cenia turbinata and flava, two useful dwarf annuals, the former with white the latter with yellow flowers. Larkspurs receive special attention, are grown very extensively, and among them there was great diversity in habit and colour. The beautiful blue Delphinium chinense had several long rows to itself; there were six colours of the Double Branching, very fine; and the same number of Delphinium Consolida candelabrum. The rich violet, lilac, and rose coloured varieties of this were remarkable for their fine hues and free flowering in that peculiar candelabrum fashion from which the race has taken its name.

Lobelias collectively occupied a large extent of ground, and the various kinds were singularly true to colour. Among them was a very fine stock of the splendid blue Crystal Palace variety of speciosa; we noticed also a new variety with the same habit, but without the white eye of the former. Others were Blue King, sky blue; Paxtoniana; ramosa, not so compact in habit, but larger-flowered; and the white variety of the same species, an excellent pure white. Among the Viscarias are to be found some splendid free-flowering annuals; cardinalis, magenta, was especially brilliant, finer in colour than the scarlet Linum, and blooming much more profusely. V. elegans picta is another very pretty variety, blush, with a purple Phlox-like eye. V. oculata and its variety Dunnetti, the one pink and rose, the other white, are also very desirable. Those beautiful and useful annuals the Clarkias had mostly been harvested; a few, however, still remained, one of the best of them being C. integripetala marginata, magenta distinctly edged with white. There were also some very desirable dwarf varieties, but their flowers were for the most part over. Whether tall or dwarf there are few better annuals for the flower garden than the Clarkias; elegant in character and distinct in their colours, they are more lasting than the beautiful many-hued little Gilias and Collinsias, although no one who had grown them would willingly dispense with these. Convolvulus minor unicaulis, with very large deep violet-blue flowers, was one of the finest of the many varieties grown, and Convolvulus major was also to be seen in various colours, as violet, white, white-and-rose, blue, striped, &c. Another Ipomæa, I. Burridgii, was extremely showy, the flowers rich crimson, with a white throat.

Of those pretty little trailers the Abronias, there was A. arenaria with yellow flowers, forming a good companion for rockwork and small beds to the better-known A. umbellata. Among Leptosiphons were some very pretty and dwarf white, yellow, pink, and lilac varieties; roseus was one of the best, being very dwarf and free-flowering. Double Zinnias and double Jacobæas were unusually fine; indeed the former have of late become almost a florists' flower, and the advance which has been made in "doubleness," as exemplified in the varieties grown at St. Osyth, was striking. The Double French Pyrethrums also now present a great diversity of showy flowers. The well-known and extremely useful Golden Feather Pyrethrum was largely grown from seed, and very true in colour.

To Hollyhocks both in mixtures and named varieties a large space was devoted, and the former included some fine flowers, while among the latter we noted such as Tyrian Prince; Broxbourne Gem, deep crimson; Mrs. McKenzie, dark rosy scarlet; Mrs. Ashley, cream yellow; and Celestial, blush. Pansies comprised good mixtures of fancy kinds of many shades, Cliveden Blue and Cliveden Yellow, which had been in flower all the summer, and a very fine dark variety with a yellow eye, called Beauty of St. Osyth. Another new kind, Dark Violet Blue, promised to prove equally useful for bedding purposes.

Of other annuals an almost endless number might be mentioned, such as the old Love-lies-bleeding, of which there are red and white flowered varieties, the double Sanvitalia procumbens, Nycterinia selaginoides, lilac or white, and Gaillardia picta, the latter two perennials, but flowering the first year; Calandrinia umbellata, beautiful in colour and very dwarf, valuable both for beds and rockwork; Nolana lanceolata violacea, beautiful violet, and there is a light blue variety as well. Double Californian Sunflower also deserves notice on account of its perfectly double orange flowers, 8 inches in diameter. Lupines exhibited great diversity of height and colour, according to the species and variety; L. hybridus atrococcineus was one of the finest, being very rich in colour. Pentstemons and Chelone barbata coccinea, the latter with bright scarlet Pentstemon-like flowers, deserve mention among perennials; the latter in particular is extremely effective, but both deserve a place in every garden. The Gladioluses, covering more than half an acre, were a splendid sight; of brenchleyensis, the most showy of all the cheap varieties for garden decoration, we were told there were somewhere about 200,000 bulbs.

The vegetable seeds had been in a great measure harvested, but we may note that of that invaluable dwarf Marrow Pea Maclean's Little Gem, the dwarfest of all the wrinkled Marrows, and to the value of which for forcing we alluded in our report of Sandringham, no less than ten acres were devoted, and there was the same extent of Tom Thumb. These figures speak for themselves. Of Laxton's Alpha there were between five and six acres. Of other sorts we noticed Climax and Leviathan, the latter one of the largest and best of the late Peas. Conquest Marrow was also a very productive green wrinkled kind. Of Broad Beans Beck's Dwarf Green Gem, not exceeding a foot high, was bearing thirty pods to a plant. Of Champion Moss Curled Parsley, one of the finest stocks of Curled Parsley ever raised, there were quite three acres, and the same area was devoted to another champion—the Champion Runner, an immense-podded Scarlet Runner. Spanish, Giant Rocca, and other Onions were largely represented, as also a fine stock of solid white Celery, Beet, Dwarf Kidney Beans, Lettuces, and Tomatoes.

ADVICE ASKED FROM SOUTH AUSTRALIA.

In your instructions for the management of pot plants, the chief ingredients recommended for the compost are turfy loam, fibrous peat, and leaf mould in various proportions. Now, in this country none of the three is to be had. The roots of our grasses die and disappear soon after the rainy season, and our loams, whether chocolate brown, or light brown sandy loam, contain not a particle of fibre. The only peat to be obtained is much about the same as English bog soil, and costs 20*s.* a-load; and as our trees are not deciduous we have no leaf mould, the nearest approach to it being all the weeds, prunnings, and garden refuse gathered into a hole and rotted there. Under these circumstances, coupled with the fact of our having two springs and a long summer, with neither winter nor autumn in reality, you can conceive that our greenhouse management is a series of experiments, sometimes successful sometimes otherwise, and I should be gratified if you or some of your correspondents of experience would suggest some plan of blending the soils we have as abovenamed (to which, of course, may be added dung, coarse river sand, and white sea sand), so as to form the nearest approach to those generally recommended.—South Australian.

The Auction of Plants at Leybourne Grange, in Kent, belonging to Sir Joseph Hawley, Bart., took place on the 10th and 11th inst. The Azaleas, 150, and Camellias ninety-seven in number, were placed on the lawn at the back of the mansion, ranged in rows or avenues about 80 yards in length, and presented a sight seldom seen and rarely excelled by any private collection. The health and symmetry of the plants showed excellent examples of Mr. Bowman's skill and care.

The prices the Azaleas brought were from seven guineas per plant downwards, and the Camellias from £6 10*s.* downwards. Several beautifully arranged baskets for conservatory decoration, tastefully filled with Ferns, &c., sold for £6 3*s.* per pair, £7 6*s.*, and £3 18*s.*

A large company spiritedly contended for the best specimens. Among the purchasers were many of the neighbouring gentry, and several of the principal London florists were present. The sale was conducted by Messrs. Tootell & Sons, of Maidstone, and to them and Mr. Bowman many expressions of regret were made that a collection of plants so beautiful should be dispersed.

HAWKESYARD PARK.

The visitors to the London horticultural shows will remember that collections of plants from this place have frequently carried off the first prizes, and such persons, therefore, are familiar with the name of Hawkesyard, the seat of Josiah Spode, Esq., near Rugeley, about the centre of the county of Stafford. In the earliest notices it is spelt Haukshardе; and in the reign of Edward III. it was the residence of Humphry Rugeley, and it remained in the possession of his descendants until the commencement of the seventeenth century, Simon Rugeley, the very effective parliamentary commander, being the last of the name who was its owner; and Dr. Harwood, writing in 1820, observes, "The Rugeleys are extinct in the county." Our next relative information is when it was in the possession of J. H. Lister, Esq. The house then was moved from the Trent Valley, placed where it now stands, and named Armitage Park. About thirty years since it was purchased from Mr. Lister by its present proprietor, the original name of Hawkesyard restored, and the gardens very largely improved.

Hawkesyard is situated on the right bank of the Trent, a little way up the rising ground which borders the broad tract of rich alluvial land through which that river takes its winding course, a tract of land perhaps not excelled in the kingdom for its productiveness as meadow. The hilly district which borders it on the south side presents the usual broken and irregular frontage to the main stream, and eventually merges into an elevated ridge differing widely in character from the rich valley below. Instead of the rank herbage and luxuriant trees, with corresponding good crops on well-cultivated farms, the elevated region referred to presents all the characters of the Scottish muir, minus rocks, and a few of these are visible in places. The high ground forming the watershed of the southern bank of the Trent at this particular place is the wild tract of country called Cannock Chase, a district where Heath and Whortleberries struggle for life, and where now and then those who visit the spot at the right season may see covered with the brilliant Foxglove tracts of land that would shame the gaudiest specimens of the so-called bedding class of flower gardens.

My purpose, however, is not to ascend this district, but to survey the base of one of its spurs or offshoots, on which stands Hawkesyard, a mansion of considerable pretensions, and surrounded by many objects of horticultural interest which deserve more than a passing notice, especially as the natural advantages of the place have been turned to good account. The mansion stands on a piece of table land formed on the flattened summit of one of those spurs or buttresses which project some distance into the valley of the Trent. The soil is light, in consequence of the sandstone rock being close to the surface, in fact cropping out in many places; and in the pleasure grounds it has been turned to good account both in plant-growing and as an ornamental feature. In the latter way it has been employed with the best possible results.

The mansion, placed as I have stated, on an eminence commanding the valley to the north of it, has its most important frontages in other directions; that to the south looks upwards over a diversified park, in which plantations of some twenty or thirty years' growth are vieing with trees of older date, the whole judiciously grouped so as to leave the important view of distant places uninterrupted. The view eastward extends over a large part of the Trent valley, with rich grass lands and trees, and cornfields on the rising grounds. Westward is the carriage entrance, and immediately in front of that part of the mansion is a neat flower garden, the beds on the turf. At the time of my visit these were well filled with choice plants. Beyond these was an irregular belt of Rhododendrons, while groups of the same plant are met with elsewhere in the grounds, which extend a considerable distance to the south and west of the house, in the former direction rising gently, and a considerable part is open lawn planted with specimen Conifers. Amongst others I noticed Picea Nordmanniana very good, and Pinus austriaca equally so. As interesting to the general visitor as anything were some very fine plants of the ordinary variegated Aloe in large tubs, placed near to the carriage entrance and elsewhere around the mansion. I must not omit to mention a fine piece of water at the lower end of the flower garden on the west side, and which added considerably to the general effect.

I must now leave this well-varied scene, and descending a little to the north I come to the various plant houses whence Mr. Chapman draws his supplies to furnish a conservatory on a little higher ground, and also now and then to astonish the visitors at the London exhibitions. The conservatory—or at least one of them, for there are more than one—is so built as to contain a large breadth of natural rock, which is turned to good account as a home for trailing and rock plants, with a number of Ferns. One of these houses contains a large central mass of natural rock, while the side shelves are more artificial, but the two blend well. Another conservatory in character more like others elsewhere.

The mansion and grounds are on the north side of a sandstone hill. The stone has been cut out at one place to form a grotto or cavern, and at another it appears to have been quarried. These two ravines, as they may be called, form the best outdoor ferneries I ever met with. Rustic paths intersect them, now ascending, then descending; at one time passing underneath an arch, at another through a dark tunnel, and on emerging at the other side a fresh scene is brought to view. This labyrinth of tortuous walks and varied scenery is highly interesting to the young and enthusiastic, and hardly less so to those more advanced in life. Water also is not wanting for dripping wells, and treacherous fountains are here and there to be met with. The rich luxuriance of the Ferns indicated that the material in which they were growing suited them well.

This interesting fernery and natural rockwork formed the intervening links between the dressed grounds and the kitchen garden and plant houses; even the latter form a link between the useful and ornamental, for in passing through the rock and fernery we meet with some of the houses devoted to the growth of plants. These structures, however, like many others in which good exhibition specimens are grown, present little, if anything, different from other houses; on the contrary, they are very common places, proving good results in plant-cultivation are due more to the skill and attention be-

Hawkesyard.

stowed upon them than on the character of the house. I remember some years ago seeing some very indifferent-looking houses, belonging to a gentleman near Manchester, whose gardener took first prizes at most of the shows at which he exhibited, and it was much the same at Hawkesyard. In these houses were some of the finest specimens of plants in the kingdom. At one place was a noble example of that singular plant, Gloriosa superba, covered with bloom, and at another one of the best Lasiandras I ever met with, and one which I believe Mr. Chapman has turned to good account. A well-bloomed Lapageria rosea and L. rosea alba on large wire trellises were very fine, as also a Phœnocoma, Dipladenia amabilis and crassinoda, and the Allamandas. Some Orchids were also grown, a Phalænopsis being very fine, but the decline of daylight prevented my seeing more. Mr. Chapman remarked that it was of little use to exhibit anything old or very easy to manage, as many old plants are now passed over—for example, the Statice, Rhynchospermum, and Rondeletia—so that only the more recently-introduced subjects, or old ones of more than ordinary merit, are now admissible as takers of first prizes. Of such there were some excellent specimens. The water plants were very attractive; a large tank, occupying nearly the whole of one house, was set apart for them. Nymphæa gigantea, a fine blue, was in excellent form, as was also N. Devoniana, a good red; there were also some Pitcher-plants and other subjects requiring the moisture of a tank without being immersed in it.

Several houses were, of course, devoted to other descriptions of plants, and I was agreeably surprised to find some excellent examples of Hurst House Seedling Pine Apple, the fruit promising to attain the weight of 8 lbs. or more, with scarcely any crown, and what was more remarkable, the plants were grown in pots standing on a stage or shelf without bottom heat. There being no pinery proper, Mr. Chapman merely grows a few in one of the plant stoves. It is but seldom one finds good fruit in such a place, sickly diseased plants are often seen, but I do not remember having noticed such fruit before. With many Pine-growers the introduction of some choice or favourite stove plant into the pinery is looked on with alarm, and for my own part I have a decided objection to the practice. That the Pines throve so well was a good evidence of the cleanliness of the plants in general; and the only difference they exhibited, as compared to those grown in bark or other bottom-heated pits, was their having scarcely any crown. Large crowns are often a consequence of too much bottom heat, but here the case was reversed, and larger crowns would have been desirable. Only a few Pines were grown at one end of a plant house.

Those who grow plants for exhibition have generally the means of transporting them from place to place without adopt-

ing the makeshifts often seen at country exhibitions, such as temporary coverings of mats over an ordinary spring waggon; at Hawkesyard there is a set of proper plant-vans built to pass along the railway, and with wheels so low that tall plants could be carried.

The kitchen garden was small, but all was in such order as to reflect great credit on Mr. Chapman, who has been at Hawkesyard Park a number of years, having been a pupil of one of the best plant-growers of his day, Mr. May, whose name often appeared in the prize lists of the horticultural shows of twenty years ago. When I was at Hawkesyard the good condition of the whole collection, whether in flower or not, was such as would be appreciated by all who are judges in such matters.—J. Robson.

HERACLEUM GIGANTEUM.

This genus derives its name from Hercules, in reference to the size of many of the species; one of them (H. Sphondylium), is well known by its English name Cow-Parsnip. There is a goodly number of species, but on account of the similarity of form many of them are difficult to distinguish; indeed, I suspect that the fruits are the most certain means of identification. The members of this genus are widely scattered over the globe, some occurring in Europe, some in America, others in India. A few of them are turned to economic purposes by the inhabitants of the particular localities in which they are found.

Heracleums have not found much favour in a general way with the majority of plant-growers, but now that beauty of form in plants for the pleasure ground is beginning to be appreciated, those remarkable for their distinctiveness and commanding appearance cannot fail to become favourites. Heracleum giganteum, of which the accompanying representation appeared in M. Alphand's "Promenades de Paris," is a native of Siberia. It is very easily raised from seed, and usually attains its full dimensions the second year; it flourishes in rough, rich, deep soil, such as loam, or even clay, and if in the vicinity of water, it not only grows stronger, but adds materially to the beauty of the scene. The usual height which it attains in good soil is 12 or 13 feet. As the illustration shows, it forms a bold, distinct, and handsome group, the foliage yielding in effect to none of the tropical plants that can be used. This, in conjunction with the fact that the plant can be raised from seed with the greatest ease, as well as increased by the division of the crowns in spring, renders it specially useful to amateurs having but little accommodation for tender plants. It must, however, be impressed upon the minds of those who use these plants, that something must be growing near them to take their place in autumn, for they will not continue to adorn the pleasure grounds much later than the beginning of August, by which time their growth will be matured, and they then rapidly decay. If it is requisite that the blank left should be filled up, some other strong-growing plant should be held in reserve, such as Castor Oil, Canna, or whatever may best please the taste of the amateur; or if a proper situation has been selected, the surrounding vegetation may have assumed such proportions that no assistance will be necessary. This is a point which must always be kept in view by those using herbaceous plants in the subtropical style of gardening.—Experto Crede.

Heracleum giganteum.

HONEYDEW—WHAT IS IT?

Professor Dyer, in a lecture recently delivered before the Royal Horticultural Society, made the following observations:—

It has been supposed that aphides, after having drawn the honeydew from the parenchyma, discharged it again scarcely altered; but it is contrary to the results of analysis to assign it a composition similar to that of leaf sap. It is, however, admitted that certain insects possess the faculty of determining the production of manna. Thus it is to the punctures of a Coccus that Ehrenberg and Heimprich attribute the formation of the manna which is still found on the mountains of Sinai.

The manna falls to the ground from the air—that is to say, from the summit of a tree, and not from the sky. The Arabs call it man, and they, as well as the Greek monks, collect it to eat upon bread in the same way as honey. I have myself seen it fall, collected it, and brought it to Berlin with the plant and the remains of the insect. This species of manna is produced

by Tamarix mannifera, *Ehr.* As with many other mannas it is the result of the punctures of an insect, which in the present case is Coccus manniparus, *H. & Ehr.*

The manna, consequently, collected in 1869 at Liebfrauenberg, had not the same origin as the Sinai manna, though it had the same composition. At the time of its appearance upon the Lime no insects were observable. It was later that a few aphides were seen glued upon a certain number of the leaves.

After having washed the extremity of a branch, glutinous points were seen gradually to rise; at first scarcely perceptible, they increased each day, so as finally to cover the whole of the upper surface of the leaf. This slow and progressive development of the honeydew was clearly effected without the intervention of aphides, which did not make their appearance till subsequently, like the flies and bees, either to feed upon the secretion or to pilfer it.

In a subsequent number Harting states that honeydew is produced by Aphis Tiliæ, which, living on the under surface of the leaves of the Lime, drops its excrement on the upper surface of the leaves beneath. Analysed by Gunning at Amsterdam, it proved to consist of cane sugar. Boussingault remarked, in reply, that the manna of Liebfrauenberg, like the Sinaitic manna analysed by Berthelot, contained, in addition to cane sugar, fruit sugar and dextrine. He added, also, that the leaves of the Lime contain considerable amounts of cane sugar almost pure, the origin of which could not be attributed to insects.

Professor Dyer then quoted Goethe, as saying, "I have seen Limes, of which the leaves seemed varnished, but where not a single insect was visible. The juice is secreted by the plant itself." Mr. Hanbury informed him that he noticed the exudation of a saccharine matter from a Canella, and that after repeated cleansings it still made its appearance. He had seen also the occurrence of minute crystals of sugar upon the corolla of the Azalea. De Candolle mentions the same thing in Rhododendron ponticum. This is, however, different to the secretion which takes place on leaves, because it is probably merely due to the loss of water from the flower preparatory to fading.

De Candolle remarks that granular secretions are found on the young shoots of the Larch, and are collected locally under the name of manna of Briançon; they also occur on Salix alba, and upon some other trees. "We cannot affirm," he says, either that they are a natural excretion, or that they are produced by insects." Dr. Masters states that a manna-like substance is produced from species of Alhagi, and that it is an exudation from the leaves and branches of the plant only appearing in hot weather. Saline secretions from leaves have been more frequently observed. De Saussure states that an accumulation of saline matters at their surface often occurs in garden vegetables, transpiration being impeded, the leaves are ultimately destroyed. De Candolle found a saline secretion from the leaves of a Reaumuria to consist of carbonates of soda and potash.—(*English Mechanic and World of Science.*)

Proposed New Fruit and Flower Market.—An important report was brought up by the Markets Committee of the Common Council on the proposal to build a new market for fruit, flowers, and vegetables in the City. They stated that in 1864 it was referred to them to examine the state and condition of Farringdon market, and to report whether any and what repairs were required to be done, and whether any improvements and alterations could be made in its construction to make it more advantageous for letting. After some delay, occasioned by the fact of great improvements being undertaken in that neighbourhood, they considered the reference, and having conferred with the president and several members of the Market Gardeners' Association on the subject, they directed the City architect to prepare and lay before them plans for the construction of a market for vegetables on the site of the existing market, on a level with Farringdon Street, and a market for flowers and fruit over the same, on a level with Shoe Lane. After further conferences with the Association and the fruit and flower growers, the scheme had been amended to meet their suggestions. The report was opposed on the grounds that just as Columbia market could not compete with Billingsgate, so no City creation would dispossess Covent Garden in the matter of fruit and flowers. An amendment approving the principle of erecting a new market, but postponing the consideration of the plan, was negatived. The report of the Committee was then adopted, and authority was given to them to apply to Parliament for the requisite powers, and to raise the necessary sum.

MOUSE TRAPS.

I observed what your correspondent Mr. Record said with reference to the trap for mice I submitted to your notice, yet I saw more than one objection to the trap he suggested. I found, as I expected, that making the wire and getting it through the pea was quite as much trouble as making the trap I had suggested. I also found Mr. Record's trap exceedingly difficult to set in such a manner as to be at all likely to be effective; but that, I think, was in a great measure owing to using so weighty a fall as a brick, which causes the wire to bind too tightly. For mice I am quite sure a roofing tile is heavy enough, and would be more certain from the extra space covered, besides its admitting of the trap being set to go off with a slight touch. Made with two bricks I do not believe in the trap; but made with a brick and tile it probably would answer for mice. I like the trap shown at page 314 much better than Mr. Record's (it is an old acquaintance), but it should be set with a roofing tile, which is lighter, and answers every purpose. I think it is far preferable for the bait to lie on the surface of the ground, as the bean does in my trap. I could make and set one of my traps in less time than I could get the wire of Mr. Record's trap through the pea, which would have to be soaked, and even then it is a delicate operation.—Broad Bean.

I certainly consider Mr. Mundell's mode of catching mice to be the most simple, and the best of all that have been noticed in your paper. To bait it I soak some peas for a few hours, and then with a needle and strong thread string about six peas together, and set the trap in the same way as figured in page 314. Instead of using the common brick I have a thin kind of brick, generally used for paving, as I find it answers better. I have never failed to catch every mouse in the garden with this kind of trap.—O. Orpet, *Cirencester.*

NOTES AND GLEANINGS.

The Royal Horticultural Society have placed at the disposal of the Nottingham Horticultural Society, and the St. Ann's (Amateur) Horticultural Society, gold medals to be competed for at these Societies' meetings in 1873, 1874, and 1875. This has been done as a recognition of the support received by the Royal Horticultural on the occasion of its last provincial Show. We are requested to state that all collections intended to compete for the Society's prize for Hurtful Insects must be sent to the Assistant Secretary, South Kensington, on or before May 1st.

—— We are informed that Mr. William Paul will hold a show of Roses, Pelargoniums, &c., at the Crystal Palace, commencing May 25th.

—— Weather.—A letter from Yeovil dated the 21st inst. says—"Snow falling fast. If the frost continues, good-bye to the fruit crops."

—— We have to record this week the death of, *facile princeps*, the most eminent of vegetable physiologists, Professor Hugo von Mohl, which took place on April 1st at Tübingen. Von Mohl was born at Stuttgart in 1805, and in 1835 was appointed Professor of Botany and Director of the Botanic Garden at Tübingen, a position he has held ever since. Conjointly with Schlechtendal, and since his death with Professor de Bary, formerly one of his pupils, he has been editor of the weekly "Botanische Zeitung" since its commencement in 1843. He was one of the foreign members of the Linnean Society, having been elected as long ago as 1837. Von Mohl has been a copious and most accurate writer on subjects connected with vegetable anatomy and physiology, of which he may be said to have laid the secure foundation in his early investigations of the true relations of cell-membrane and contents. Among his original observations we may especially mention his essay on the Structure of Endogens, published by Von Martius in his "Historia Palmarum," and on the Stem-structure of Cycads in the "Vegetable Cell," which appeared in Rudolph Wagner's "Handwörterbuch;" on the Origin and Structure of Stomates; on Cuticle; on the Structure of Cell-membrane; on the Structure and Anatomical relations of Chlorophyll; on the Multiplication of Plant-cells by division, and numerous other essays collected in his "Vermischte Schriften."—(*Nature.*)

WORK FOR THE WEEK.

KITCHEN GARDEN.

Where *Broccoli* and *Winter Greens* are coming off, the ground should be deeply trenched, the stems placed at the bottom of the trench, and quicklime strewed over them. If the ground is intended to be again planted with any of the

Cabbage tribe it should be manured, but it is best at all times to change the crops as far as practicable. If, however, from circumstances of soil or situation it is necessary to plant the same kind of crop repeatedly in the same situation, such parts should have repeated turnings to expose a new surface to the influence of the atmosphere, and frequent applications of fresh maiden loam, a portion of the old soil being removed if necessary. A full crop of *Red Beet* may be sown towards the end of the week. Earth-up *Beans*, and sow successional crops of both *Peas* and *Beans*. Keep the ground well stirred amongst *Cauliflowers* and *Cabbages*, and lose no opportunity of destroying slugs. Sow *Dwarf Kidney Beans* on a warm sheltered border, also a few *Scarlet Runners*, but these succeed so well transplanted, that it is advisable to provide for contingencies by sowing in pots or boxes and germinating the seeds under glass. When the young plants come up remove them to the open air, cover them at night, and transplant them in the second week of May; they will come into bearing more than a week before those sown in the open ground, and will continue to bear quite as long; at the same time there is no danger of their being nipped by the spring frosts. Thin-out the young advancing plants of *Lettuces*; if none are wanted for transplanting they may be left at the full width at once, and the surface well stirred about them. Continue to earth-up and stake *Peas* as they advance, taking care to fork or otherwise loosen the ground between the rows after the staking is done. Let this be followed up even if *Spinach* is growing between the rows, as that will be benefited by having the surface well stirred about it. Keep up successional sowings of *Lettuces*, *Spinach*, *Radishes*, and *Salads*.

FRUIT GARDEN.

The process of disbudding Peach trees will now be in full operation; watch the growth well, and remove but a few of the shoots at a time. Endeavour as far as possible to keep beforehand with the growth in disbudding, and not behind, for in the latter case one is often tempted to take off more shoots at once than proper, and the check thus given to the flow of the sap has very often the effect of causing the fruit to stop swelling and eventually to fall off. Remove all the forereright shoots from Apricot trees, also a portion of the side shoots, but endeavour to distinguish those which are likely to form short fruit-bearing spurs, which must always be left. Keep a good look-out for the Gooseberry caterpillar. Hellebore powder is a good remedy, but hand-picking better, if there are hands to spare.

FLOWER GARDEN.

Attend to the pruning of evergreen shrubs; remove all dead branches and shoots of last year's growth that have been destroyed by the late frosts. Hoe, rake, and stir the surface of flower borders, and remove all decayed leaves and stalks of plants which have done flowering. Thin out early-sown annuals in open borders to from four to six plants in each patch. Thin out the shoots of Hollyhocks and other herbaceous plants. Give standard and dwarf Roses another good soaking with manure water, which will excite a vigorous growth and insure an abundant bloom. Autumnal-flowering Roses, especially, delight in such treatment. Polyanthuses will require shading as they flower. If seed has not been already sown, let it be done immediately. Ranunculuses will now be showing themselves, and seedlings will be rising fast; in the latter case, should worms appear to throw them out, water with lime water, which will not affect the plants. Tulips must be especially attended to and preserved from the effects of hail and frost; if the beds have not been carefully gone over and the surface soil broken by hand, it should be done immediately. Pinks and Pansies should be top-dressed with very rotten manure, and as soon as the latter make side shoots they may be taken off and struck. Pot off Dahlias as they root.

GREENHOUSE AND CONSERVATORY.

These will now be in greater splendour than at any other period. There is no occasion here for an oppressive atmosphere; indeed, such would defeat the end in view, which should be to prolong the beauties of the gay inmates as much as possible. The forced Pinks, such as Anne Boleyn; the tree Violets; the Perpetual, Bourbon, and Tea Roses; the Azaleas, and Rhododendrons, will now please the eye and exhale their delightful fragrance. The Verbenas are charming ornaments here at this period; propagated in August, planted three in a 5-inch pot, and well established before winter sets in, they bloom abundantly from the middle of March. The syringe will of course be laid aside here; atmospheric moisture must, however, be secured, slowly but constantly.

STOVE.

It is now time to warn all those who desire to have their houses well decorated during this year's winter, that the only sure foundation of success must be laid at the present period. The flowers most eligible for this purpose are certainly not of the most recent introduction; some of them are of very long standing in our hothouses. They must not, however, be lost in the crowd; they will be very acceptable during the dull months of December and January if properly cultivated. Of this character are Gesnera elongata, some of the Begonias; Phajus grandifolius, several of the Bletias, Cymbidium simense, and Cypripediums among Orchids; Linum trigynum, Euphorbia jacquiniæflora and splendens, possess capabilities of the kind. The Correas, the Polygalas, and some of the Acacias are eligible, also the Hybrid Perpetual Roses, retarded Scarlet Pelargoniums, Anne Boleyn Pinks, Neapolitan Violets, Cinerarias, Chinese Primroses, &c. I will endeavour to offer advice on these plants occasionally as to their winter-flowering properties, and in the meantime I would merely say that the mainspring of success is early cultivation, and a comparative degree of rest, or rather freedom from over-excitement during July and August. This course induces the flowering habit in an eminent degree afterwards; a moderate amount of stimulus produces the desired effect. The Gongoras, Zygopetalums, Peristerias, Brassias, some of the Dendrobiums, Cattleyas, Sobralias, Phajus, &c., will now be growing with rapidity. Look well after insects; this is the most dangerous period. Be very attentive to the state of the atmosphere, and secure a considerable amount of atmospheric moisture, taking care at all times that it exists in a due ratio to the heat. Keep up a slight circulation or motion in the air day and night.

PITS AND FRAMES.

The propagation of plants for the summer and autumn decoration of the flower garden should be brought to a close as soon as circumstances will permit; cuttings may still be put in this week, but not later. I am fully aware that much depends on taking off, making, and putting in cuttings; but, on the other hand, I am confident that paying attention to these points will not ensure success if they are not carefully attended to in the cutting-pit as regards light, heat, and moisture. Now is the best time of the year to increase choice collections of Phloxes by cuttings; take off the young shoots when 3 or 4 inches in length. Choice Alpine plants should be taken out of their winter quarters and fully exposed to the weather. Large specimens of early-flowering species should be removed to the flower garden and placed in vases or rustic baskets. Clear out some of the hardier bedding-out plants which have been under glass during the winter; place them in some sheltered position, where they can be readily protected in case of frost. Put a stop to the ravages of mildew by dusting the plants with sulphur.—W. Keane.

DOINGS OF THE LAST WEEK.

KITCHEN GARDEN.

Sow early if you can, and run the risk of failure, but if you value the seed wait a little longer. We are almost sorry that we raised the note of alarm some weeks ago, but we thought our readers would be rewarded for the loss of a few pence in seeds by the profit made upon the early produce. The critical time with seedlings is when germination is just taking place. Then excess of heat, cold, or dryness is very likely to kill them. Our earliest sowings of Onions, Carrots, &c., are coming on beautifully. Our advice to people with limited space is "Sow often." If we wanted a beautiful young Carrot we would keep on sowing from March to July. There is no comparison as respects sweetness between such young produce and the one sowing which satisfies most people. Never depend on one sowing.

We generally sow so that each kind of seed will distinguish itself; thus Broccoli being parted by Borecoles, Cauliflower by Brussels Sprouts, so that if sown close there is no necessary mixing at planting time. These matters are of little moment in large gardens, but they are important where ground is scarce, and where a seed bed, therefore, should take up little room. Well, the seeds being scattered evenly over the allotted space—and the very colour of red-leaded seeds affords a good criterion of the even hand of the sower—the next thing is just to pat the seeds gently down, and then scatter a slight covering of light soil all over, which generally receives another gentle pat.

Here let us add that in such uncertain seasons as the pre-

sent it is well to sow a few Brussels Sprouts, Savoys, &c., under protection in March. These pricked-out, and planted-out soon, come in early in the autumn.

Cauliflowers.—Planted-out the second, pricked-out the third crop, and banked-up the earliest crop, which is coming on strongly. Gathered some nice dishes of Asparagus during the week. The forward shoots had to a great extent been protected from frosty nights by setting flower-pots over them.

FRUIT GARDEN.

Nothing could be more trying for out-door fruit—bright sunny days, followed by much wet, frost, snow, and sleet. Trees on walls have suffered little, but we have doubts if the Plums, Pears, and gorgeous bloom of Cherries will pass uninjured. The frost would do little harm in comparison with what the wet and sleet attending it would do.

ORNAMENTAL DEPARTMENT.

We hear of people turning out Geraniums and Calceolarias wholesale. We think these frosty nights must have taught them a lesson. For ourselves, we never could see the use of running the risk of such early planting. We have thousands of such plants in open earth trenches, but then we do not allow much frost to touch them, or the snow or sleet to lie among them. We have known many cases where such starved plants, turned out so early, have not recovered themselves before the middle of summer, and even then showed traces of the injury they had suffered.—R. F.

TRADE CATALOGUE RECEIVED.

John Scott, Merriott Nurseries, Crewkerne, Somerset.—*Catalogue of Bedding Plants.*

TO CORRESPONDENTS.

*** We request that no one will write privately to any of the correspondents of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely to The Editors of the Journal of Horticulture, &c.*, 171, *Fleet Street, London, E.C.*

We also request that correspondents will not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, if they expect to get them answered promptly and conveniently, but write them on separate communications. Also never to send more than two or three questions at once.

N.B.—Many questions must remain unanswered until next week.

GARDENERS' EXAMINATION (*A. B. C.*).—The next is not fixed; it will be advertised. "Fruit Manual" will not be published for months to come. Loudon's book is out of print. "Cottage Gardeners' Dictionary" and Supplement can be had. We know of no new edition.

DINNER-TABLE DECORATIONS (*A.*).—Your employers are right in thinking the tall glasses are too tall. None should be so high that they cannot be seen over. The centre one should be the highest, and not more than 1 foot high, and two lower in a line with it; or four low corner glasses. It is impossible to particularise the numerous glasses now to be seen in the London shops.

BELL (*The Man in a Fog*).—We know of no reason why it should be liable to be broken, except by stones thrown at it.

TORQUAY *v.* SIDMOUTH (*E. N. G.*).—Beyond a doubt select the first for your sojourn. In addition to other superior attractions it is close to the Devon Rosery. You are a Rose-worshipper—go there and show the following extract from a letter we have received, dated the 17th inst.; it will insure you even more than usual attention. "I cannot describe to you how charming Torquay is at the present moment in its array of brilliant fresh green. The lanes are exquisitely fair with early flowers, remarkably profuse this season. I think I never saw Primroses, Violets, Bluebells so rich and rare, with many others gemming the banks with beauty; and the air is so clear and pure they seem to rejoice in it, as do the bonny birds in every bush. We have the cuckoo already singing its old ever-new song. It is pleasant to see the children and the poor invalids flocking out in the sunshine, their hands full of wild flowers. We have had some lovely rambles in the Cockington lanes, and long ones too, in spite of not being very strong, for one lane beguiles you into another, until we get almost frightened to find how far we have to return. We turn our steps homeward, and the beguiling is not over, for fresh sea-glimpses over fresh gates, and peeps into glades missed before, carry us home before we are aware how legs and feet are tired, and a good night's rest makes us long for another stroll. 'To-morrow to fresh woods and pastures new.'"

WOODLICE (*O. O.*).—You must be mistaken; they will not walk through, much less "under" water. The marauders must be in the soil. We can add nothing to our frequent replies about trapping them.

PINES TO FRUIT FROM AUGUST TO OCTOBER (*A Twenty-years Subscriber*).—We do not think your plants now in 10-inch pots will fruit at the time you wish. You do not say when they were repotted, but we presume the pots are full of roots, in which case we would shift at once into 13-inch pots, and afford a bottom heat of 80° to 85°. Do not water much for a fortnight, or until the roots are working freely in the fresh soil. Maintain an abundance of atmospheric moisture, and a top heat of 65° at night and 75° by day, with a rise from sun heat of from 5° to 15°, accompanied with abundance of air. If the plants have been recently repotted and the pots are not full of roots do not repot, but keep them in the temperature named. Many of them if kept rather dry in May will then start for fruit, and others will follow, producing fruit at the time you require. Do not crowd them, but allow plenty of room, and keep them close to the glass. To ripen fruit at the time you name you will need to have plants showing fruit in May and June. Encourage them with plenty of heat, moisture, light, and air.

LIQUID MANURE FOR GARDEN (*P. T. B.*).—Instead of watering with liquid manure we would now give your crops a dressing of guano in moist weather, and make a second application in June in moist weather, at the rate of 3cwt. per acre. You may water in dry weather with 2 ozs. of guano to a gallon of water, giving in dry weather a good soaking once or twice a-week to all growing crops. These should be applied to fruit trees weak in growth, or which have heavy crops of fruit. To such, good soakings should be applied in dry weather.

HYACINTHS IN BEDS (*Idem*).—Allow the Hyacinths in beds to remain in the ground until the leaves turn yellow, then take up the bulbs, dry them, remove the offsets, store the whole in a cool dry place, and plant again in October or November. Thus treated they will bloom well the following year, if not quite as finely as imported bulbs. We have seen some planted in rich well-drained soil that had been removed for a number of years annually, and they produced very handsome full spikes of bloom. They had increased so as to form a large patch.

DISBUDDING A VINE (*Glerum*).—When the shoots are 2 or 3 inches long they should be rubbed off close to the part whence they proceed, leaving those required at 9 inches apart on opposite sides of the cane; the shoots left on each side will be 18 inches apart, or as near that distance as their disposition permits. These shoots should be stopped at the joint beyond the fruit—if there is no fruit, then at the first tendril or sixth leaf. The leading shoot or rod should be trained to the top of the house before stopping, and its laterals stopped at the second leaf.

APHIS ON CONSERVATORY PLANTS (*H. T. C.*).—We advise you to fill the house with tobacco smoke. A calm evening should be chosen, and though the doors, &c., may be wet the foliage of the plants should be dry. The shoots left on each side will be 18 inches apart, or as near that distance as their disposition permits. These shoots should be stopped at the joint beyond the fruit—if there is no fruit, then at the first tendril or sixth leaf. The leading shoot or rod should be trained to the top of the house before stopping, and its laterals stopped at the second leaf.

APHIS ON CONSERVATORY PLANTS (*H. T. C.*).—We advise you to fill the house with tobacco smoke. A calm evening should be chosen, and though the doors, &c., may be wet the foliage of the plants should be dry. This will kill the aphis. If you object to fumigation we advise you to syringe the plants with tobacco water, diluting "tobacco juice" with six times its bulk of rain water; or you may apply tobacco dust, and syringe it off the following day. We prefer fumigation. For red spider syringe twice a-day. There is no certain means of preventing the attacks of insects; the best are sufficient ventilation, no more than the requisite artificial heat, and taking prompt measures to arrest their progress on their first appearance.

KILLING GRASS ON GRAVEL WALKS (*Idem*).—Probably the surest method is to dissolve 1 lb. of powdered arsenic in three gallons of cold water, boil, and keep stirring for about ten minutes, then add 2 lbs. of crushed soda; stir the whole well in the boiler, and apply it hot to the walks in dry weather. A watering-pot with a rose is the most suitable vessel for applying the liquid. It should be kept from the edgings. The quantity named is sufficient for 25 square yards of walk. Our correspondent informs us that to scare birds he "usually ties common fowl feathers about 10 inches long, on a string over the rows of Peas, slipping them up to the middle in a loop, and the wind keeps them constantly on the move." The plan is useful, and may be seen in practice in thousands of artisans' and cottagers' gardens.

REMOVING STRAWBERRY RUNNERS (*H. Corbett*).—We consider that the runners of Strawberry plants are best removed when they become crowded and deprive the parent plant of much of its support. Of course, when increase is required the runners must be left; even then the best and earliest should be layered, either in small pots or in the ground, so as to have them rooted in good time, well ripening their crowns before winter.

REMOVING SMALL ASPARAGUS SHOOTS (*Idem*).—We have tried cutting the small shoots as well as those fit for use, also cutting the latter only, and we find the second plan the better; at least, we left the small shoots last year, and our beds promise in this an abundance of fine stout heads. The main point in the cultivation of Asparagus is to secure a good growth in the summer, and to feed it well, so as to secure stout well-developed buds; the produce is then sure to be good.

PROPAGATING AZALEAS, DEUTZIAS, AND CARNATIONS (*T. J. J.*).—Cuttings of the varieties of Azalea indica may be taken off when the shoots are 3 inches or more in length, and have become rather firm. Take 3 inches of the top of the shoots, paring them smooth immediately below a leaf, removing the leaves halfway up the cuttings, and insert them round the sides of a pot well drained, and filled to within an inch of the rim with very sandy peat. Fill them to the rim with silver sand, putting in the cuttings as far as the leaves are removed, water gently, and cover them with a bell-glass just fitting top with crocks broken small, then put on a little moss, and finish off with silver sand, on which the bell-glass should rest. Place the pots in a temperature of 60° to 65°, and shade them from sun. When the cuttings are rooted remove the bell-glass by degrees, and place them singly in small pots in a close frame until well established; then harden-off the cuttings, and remove them to the greenhouse. Deutzias are propagated by cuttings of the shoots of the current year after they become firm, of forced plants in June, and of those grown out of doors in July or early in August. Place them in sandy soil, cover them with a hand-glass, and shade them from bright sun. The strong ripe shoots may also be inserted in autumn, after the leaves fall, in a sheltered spot. Deutzias are also readily propagated by layers. True Carnations are propagated by cuttings, which may be put in at any time. They strike freely in sandy soil, covered with a bell-glass, in a house 10° warmer than that in which the plants were grown from which the cuttings were taken. Shade from sun.

CUCUMBER-HOUSE FUMIGATING (*W. C. D.*).—We do not see why you should fail in filling the house with smoke, and that to the extent required for destroying aphides and thrips. We agree with your gardener, tobacco is the best material to use, and are not surprised at his objection to expensive, which, though very irritating to the human lungs, is all but harmless to aphides and thrips. The scale on the Stephanotis may be destroyed by washing with 3 ozs. of soft soap and a table-spoonful of spirits of turpentine to a gallon of water. Apply it either through a syringe or with a sponge at a temperature of 140°. The ammonia vapour is very useful, and would answer in a Cucumber-house. Place guano water in the evaporation-troughs; and the proper strength to employ is 1 oz. of guano per gallon. It would also be useful for the Stephanotis, and for the 2 ozs. of guano per gallon will not be too strong.

ROSES MILDEWED (*An Amateur, Dewsbury*).—It seems that yours is a bad case of mildew. We advise you to apply guano water at every alternate

watering, at the rate of 1 oz. to the gallon, and to every three gallons add 1 oz. of common salt. After the second application apply the guano water without the salt. If the mildew continue, water with the salt solution twice a-week if the weather is dry; if not, once out of three waterings. We would also forcibly syringe the plants, and dust them whilst wet with flowers of sulphur, both on the stems and the under and upper surfaces of the leaves, syringing it off in twenty-four hours. After this give plenty of air in a light structure.

Spent Hops for Mulching (*F.*).—Spent hops from a brewery are a good mulching material for Roses and for fruit trees, and, whilst they prevent the evaporation of moisture, they are a good manure, earthin ; the ground by the decomposition of vegetable matter. A thickness of 2 or 3 inches is not too much.

Summer-pinching Pear and Apple Trees (*Idem*).—This should not begin until the shoots have six leaves or joints, then take out their points. This applies to the leading shoots of the extending branches, but the side shoots of these should be pinched at the third joint, and afterwards to one joint. Their leading shoots may be stopped again at the third joint. This will encourage the development of the spurs, which should not be interfered with.

Stopping Wallflowers (*Idem*).—There is no necessity to take the points out of Wallflowers to induce them to become bushy. They will do this naturally if they have room. By removing the central shoot you take away the best spike, especially in the case of the double-flowered varieties.

Pampas Grass Culture (*H. S.*).—The old flower-spikes and dead leaves should now be removed, taking care not to interfere with the young growths. We should then lightly fork the ground all round to the distance of a yard, and give a top-dressing of well-rotted manure 2 inches thick next the plant, reducing the depth outwards to 1 inch at 3 feet from the collar. If the ground is dry give a good watering, and every week in dry weather a good soaking of liquid manure, but not very strong. If you form this artificially 1 oz. of guano to a gallon of rain water will be strong enough. In October give a top-dressing of well-rotted manure 3 inches thick, leave the dead grass, and do not remove it until growth commences in spring.

Begonias after Flowering (*Lady King*).—Keep the plants rather dry for a time, then cut off all the shoots that have flowered, and encourage the strong young shoots from the base of the plants. We prefer to raise fresh plants every year by putting-in cuttings of the strong shoots early in April; in a brisk heat they strike freely. If their growth is encouraged they may be in 9-inch or even larger pots early in winter, and will flower much more finely than older plants. We throw the older plants away after flowering, having made sure of a supply of young plants.

Wintering Mesembryanthemum cordifolium variegatum and Echeveria secunda glauca (*A. J.*).—Both will winter safely in a greenhouse with Geraniums, keeping them dry, or with no more water than a little occasionally to prevent the leaves from shrivelling. They should have a light airy position.

Raising Double-flowered Geraniums (*J. G. B. L.*).—We cannot give you any information. Our correspondent has failed in raising seedlings after trying for two or three years, and would be glad of any information on the subject.

Azaleas Sporting (*A. B.*).—We do not know any means of preventing the occurrence of different colours in the flowers of Azaleas. We presume it is one of the kinds that have white flowers, a few red-striped, and occasionally some red flowers. We consider them very pretty.

Violet Culture (*An Old Subscriber*).—The Violet most grown for the London markets is that known as "The London," or Giant Russian, but all the kinds are very extensively cultivated for that purpose. The Russian and Czar are the earliest, and with the Crimean, Devoniensis, and White are single-flowered, the doubles being Neapolitan, Double Russian, Scotch, King of Violets, Odorata pendula, and Queen of Violets. We prefer single and double Russian, Czar (best of all), Neapolitan, Single and Double White, Scotch, and Queen of Violets. The runners should be planted in good rich soil on the north side, under shaded from the direct midday rays of the sun. Place them a foot apart every way, and let them be well watered after planting, and in dry weather throughout the season. They may be taken up and placed in frames at the end of September, giving air abundantly in mild weather, and protection in severe frost. They should have a warm sheltered position. A portion should be left in the open ground to succeed those placed in frames. Keep the plants clear of weeds in summer by stirring with the hoe, and sprinkle with soot frequently to keep down red spider. Remove the runners in summer, as they only weaken the plants, and in autumn top-dress with partially decayed leaves.

Single White Primrose (*E. C. S.*).—Our correspondent wishes to know where he can purchase it.

Manure for Light Soil (*Sutton*).—As you have no farmyard manure, put on a mixture of clayey soil, limey rubbish, and guano. Not knowing anything about the condition of the land we cannot be particular.

Pear-tree Scale (*S.*).—We have no doubt it is Aspidiotus ostreæformis. Brush over with paraffin oil the branches affected, taking care not to let it touch the leaves or buds; or, which is a less offensive-smelling remedy, apply in the same way Gishurst compound, 8 ozs. to a gallon of water.

Height of Garden Walls (*An Irish Subscriber*).—The height of the wall must in all cases depend on circumstances, but to be of any value for fruit trees it should not be less than 7 feet, and at that height it will be necessary to plant the fruit trees at double the usual distance apart. A south wall is as good for protection at 7 feet as 12 feet high, but the latter height is worth twice as much for training the better kinds of fruits. If a wall is objectionable we would have a glass wall or narrow house; that will give you all the shelter you need from the south, and afford means of growing Peaches, Nectarines, Apricots, Cherries, and Plums with greater certainty than against walls.

Acuba Seeds not Germinating (*Idem*).—We think the seeds must be bad. We know of no better plan than to separate the seeds from the pulp when the berries are ripe, and sow in pans of rich light soil, covering the seeds about half an inch deep. Place the pans in a house with a temperature of 45°, and keep the soil moist. They ought to germinate in less than two years if good. Try again, and place them in a mild hotbed. A small-trussed bright scarlet Verbena would answer for a pincushion bed with Cerastium. Melindres splendens is a good kind of Verbena for this purpose.

Tropæolums (*M. D.*).—Tropæolum pentaphyllum, T. tuberosum, T. Moritzianum, T. polyphyllum, and T. speciosum are all half-hardy tuberous-rooted climbers, and require support. Neat wire trellises are most suitable. None of them will stand frost; they should, therefore, have south exposures, and if the tubers are left in the ground they should be planted not less than 3 inches deep in light rich soil, well drained, and at the foot of a south wall, covering with 3 inches of partially-decayed leaves and litter in November. They are best grown in pots, in the same manner as the greenhouse kinds, with which you are so successful. They increase as readily as the other sorts you name, and in the same manner. T. speciosum has roots, not tubers, and we should give them a chance out of doors if you can command a south wall; if not, they would be best grown in pots.

Mouse Trap (*E. C.*).—Yours is the same as Mr. Muniell's.

Diamond-shaped Flower-beds (*Cottage Gardener*).—We like your pair of diamond planting very much. We do not like your eight large triangular figures so well. You have neither thoroughly carried out cross nor pair planting. As the cottage door opens on the paved footway, we think that pair-planting these triangles would be best, and we would take the key note from the diamonds, and have two or more colours in each bed. Thus, taking the plants you have mentioned, and beginning at the cottage door, we would plant 10 and 7 with Christine and a broad margin of Flower of Spring. Then 9 and 11 we would plant with Indian Yellow, and a margin of Bijou; 5 and 12 we would pair with Bayard, bordered with dwarf Ageratum, and margined with Golden Chain; 9 and 8 we would centre with Stella, band with Pearl, band again with Ageratum, and margin with Golden Pyrethrum. We think such a grouping could hardly be surpassed.

Flower-garden Plan (*Elta*).—Your planting is very good. Were we to change, it would be to place the Beet and Iresine in the centre, and the fine-foliaged Geraniums round. Nothing could show better the advantage of a little criticism than this your second proposed planting.

Labyrinth (*G. J. S., and E. E., Gloucester*).—There should be an opening at the lower right-hand corner of the third hedge, otherwise, as you remark, there would be no access to the two outer walks.

Bottom Heat Excessive (*W. J.*).—Yours is not a common case under such circumstances—having too much bottom heat over a fireplace intended to heat a vinery. The remedy is obvious; make the pit larger, or make some holes in the chamber to allow the heat to escape, and plug them up, so that by opening or shutting them you may have the exact heat you want.

Vine Shoots Shanked (*J. R. G.*).—The roots are inactive and do not supply sap sufficient to maintain growth. If they are outside, put fermenting dung over them and mulch throughout the summer. If they are inside, water them freely with very weak tepid manure water.

Seedling Pelargonium (*J. H. Curate*).—Pretty, but nothing more. There are hosts superior to it.

Heating with Hot Water (*T. L. M.*).—In such a case we would have a 3½-feet saddle-boiler, and as it must be placed at one end, we would have T flow and return. We should like two 3-inch pipes on each side beneath the stage, one as a flow and one as a return, but except near the point where the return joins the boiler, we would place flow and return on the same level, raising them from the point where the flow enters the house to the extreme end about 9 inches, with an open air-pipe there, feeding the boiler from a cistern near hand. Of course, the water would go along the flow and then the return, when it reached the place where the air-pipe was inserted. The pipes should be placed a few inches above the ground level, and with something firm against the joints. The heat at the farther end will not be too strong, but you can regulate it by divisions, in 170 feet these would be useful. You could open or remove the doors in summer. If you wanted more heat, you could have 4-inch pipes, or some day add an additional 3-inch pipe. The two pipes on each side would keep out frost.

Insects (*A Lady in Cheshire, and J. K., Rhug Gardens*).—The little scarlet creature is the common mite, Trombidium holosericeum, to be met with in gardens and elsewhere.—I. O. W.

Names of Plants (*Stockbridge*).—The owner is right; it is Honesty or Moonwort, Lunaria biennis. (*Alba*).—It is the Showy-flowered Gooseberry, Ribes speciosum. It deserves to be in every border of flowering shrubs—its crimson flowers are as showy as those of the Fuchsia. It may be propagated by cuttings, but the most certain mode is by pegging down some of the lower shoots, and covering the pegged part with an inch in depth of the soil. (*Young Botanist*).—The cork of commerce is the outer bark of an Oak, Quercus Suber. Send us plant specimens numbered, and we will endeavour to name them.

POULTRY, BEE, AND PIGEON CHRONICLE.

HOME PRODUCTION OF EGGS AND POULTRY.

Mr. M. Kinnard B. Edwards, of Sarn Farm, Bridgend, read the following paper before a recent meeting of the Breconshire Chamber of Agriculture :—

The subject upon which I have the pleasure of addressing you this afternoon is, "The Home Production of Eggs and Poultry in a Commercial Point of View," and it is my intention to treat this subject as far as possible from the farmer's point of view, rather than in connection with the breeding and production of prize and fancy fowls by amateurs or exhibitors. Agriculture in all its branches, like everything else, has made rapid strides during the past twenty years, and I think I may say that no branch of husbandry has improved more, or risen to greater importance, than the various breeding of poultry in this country. The annual poultry shows that we now hold in almost every county in England prove more clearly than anything the advance we have made in this respect, and the tens of thousands that flock to these shows or exhibitions is a proof of the great public interest that is felt on the subject. Any stranger coming to this country and visiting these shows, where every conceivable breed of bird is exhibited in its highest state of perfection, both as to size and plumage, would go away with the idea that the poultry of Great Britain was all that could be desired, and that there was really no room for improvement ; but the true state of the case is far otherwise. The fact is, that until quite recent years, the breeds of fowls in this country (a few localities

excepted) had been allowed to degenerate century after century, so as to become almost worthless in a commercial or pecuniary point of view. Fowls were merely tolerated upon the farm to act as scavengers, and living as best they could, rather than being kept with any idea that a profit might be realised by them. The trifle that is realised from the poultry yard was the acknowledged perquisite of the farmer's wife or daughter, and not in any way considered part or parcel of the master's stock or profits, or in any way worthy of his notice. The farmer plainly saw his fowls consumed a quantity of his grain, and that he, individually, reaped no profit by their presence, and little wonder that he should have come to the conclusion (for quickly comes such knowledge) that "fowls don't pay." Well, as I said before, the tens of thousands who attend our shows, and the presence of the magnificent specimens of poultry to be seen exhibited, would lead the casual observer to believe there was little room for improving our yards, or necessity for stimulating increased attention to the production of eggs and poultry; but the startling fact that we annually import into this country no less than 500,000,000 of eggs, to say nothing of the tons of poultry, shows us at once how utterly erroneous such an impression must be.

Whatever we have to pride ourselves upon as a nation, it certainly is not the quality or quantity of our poultry, and as long as we continue to look abroad for this stupendous supply (500,000,000), the less we say about our poultry or poultry shows the better. That poultry shows are useful I think nobody will deny, inasmuch as they tend to stimulate an increased interest in the keeping of good poultry, and encourage the breeding of the best and most profitable stock. It is, however, one thing to have a valuable article within your reach, and another to make use of it and profit by it. It is a comparatively easy task for our amateurs and poultry fanciers to introduce into this country from abroad the most valued breeds of foreign fowls, and exhibit them at our shows, but quite another matter, and a far more difficult one, to revolutionise the poultry yards of the million—the 400,000 farmsteads of England—by inducing them to introduce these "new-fangled" birds. To import and breed a sufficient stock for the desired improvement of the country is the work only of a few years, but to induce the agricultural population of the country to improve their stock by the introduction of fresh blood will be the work of many. Not until this desired end is gained can we hope for any great change in the home production of eggs and poultry, or the public be benefited by the increased quantity and improved quality.

Although I am ready to admit that the farming classes of this country are fully alive to their own interests, when it can be shown to them by practical and ocular demonstration, that by making a change they will increase their profit; yet it cannot be denied but that this important branch of our community are, in every sense of the word "conservative," and will make no change unless irresistible proof is forthcoming to prove the importance of that change in a pecuniary and commercial point of view. Now, when we consider that poultry generally, and fowls in particular, have for centuries been looked upon with disfavour in a pecuniary sense, and the acknowledged idea that fowls "don't pay," has been handed down from generation to generation, it is not surprising that no very marked change has yet taken place in the improvement of the breed, or increased number of fowls in the farmsteads and cottage runs throughout the country. This change, as I said before, must be a gradual one, and can only be brought about by degrees, and by the presence of these more valuable and profitable birds becoming scattered throughout the country, and the example and success of those fanciers who are now yearly increasing, and may now be found located in almost every district.

Apart from the inherited prejudice which exists against fowls, and the objections against newly-introduced breeds, there is another cause why so little improvement has taken place in the breed of farmyard poultry, and it is this. Until within the last year or so the prices asked by the breeders of the best stock for really good birds has been so exorbitant as to preclude the farming and cottage classes from purchasing, however much they might be inclined to improve the stock; also the price asked for eggs for hatching has been such as to draw a smile or "wish you may get it" from the astonished applicant, who had hoped to secure a sitting of eggs for 1s., instead of the 15s. or 20s. asked. It is no uncommon circumstance even now for good prize birds to command from £5 to £10 each, the price of a couple of sheep or a bacon pig; and a dozen of eggs for hatching for prize birds often command a guinea to 30s.; and it was but a year or two ago difficult to purchase at a more reasonable price. But a change has now taken place in this respect, owing to the very large number of prize-poultry breeders that have sprung up, and created that most wholesome of all influences—competition; so that now really first-class birds and eggs for hatching can be obtained at a really moderate figure; indeed, at a far more moderate price, considering their real intrinsic value, than what you would have to pay for common barndoor fowl eggs. Good stock birds are now to be had at 7s. 6d. to 10s. each, and this cannot be considered a great price for a huge Brahma cock weighing 9 lbs. or 10 lbs., and eggs from these birds are now advertised in any number at from 3s. to 5s. the sitting.

(To be continued.)

WHARFEDALE POULTRY AND PIGEON SHOW.

This Show was held at Otley on the 10th inst., and was in all respects a great success, the entries being more numerous than on any previous occasion. The morning was cold and showery, the afternoon exceedingly fine, and the influx of visitors was great.

With the exception of the winners *Spanish* were not good, but those were very good in face, drop, and comb. *Dorkings* were moderately good, but badly matched as regards colour. *Cochins* were a good class; the first prize went to Lemon Buff, and the second to Partridge-coloured. The cock in the first-named pen was one of the most perfect-coloured birds that has yet been produced. *Brahmas* were also good, most of the pens containing birds worthy of notice. Of *Polands* there were only three pens. The first prize went to Silver and the second to Golden of a quality rarely seen. Of *Game* there was a capital show, the prizes being sharply contested and won only by very slight points, with the exception of the single cocks, in which the cup for the best pen was awarded to a Brown Red stag which will no doubt be again heard of in the prize lists. Duckwings were a fair class, but many of the hens were out of feather. The *Hamburghs* were very good in point of quality and entries, and the cup for the best pen in the Show was awarded to Silver-pencilled, which were nearly perfect in all points. With the exception of the winners the Game *Bantams* looked very badly, no doubt owing to the coldness of the wind, which played quite through the pens. The winning Black Bantams were very fine in feather and condition, although quite large enough. The next class was for single Game Bantam cocks, and these were of good quality, although the second prize might very properly have been changed for a bird shown by Mr. Smith, of Northowram, which on a second examination appeared to be the better of the two. In Bantams of any other variety Whites were first. In the Variety class *Crève-Cœurs* won both prizes.

Ducks came next, Rouens being first, and for the time of year they were in good plumage, as also were the Aylesbury. There was also a Variety class for Ducks, in which a very fine pair of Ruddy Shells were first and Viduata Whistlers second. The rest of the birds were Bahamas, Mandarins, Carolinas, and common Teal. *Turkeys* were large and good. Mr. Leech was first with a handsome pair of Cambridge.

In the Selling class, Spanish were first and Partridge Cochins second.

The schedule for *Pigeons* is but poor—scarcely worth while for exhibitors to enter in at this the height of the breeding season; still, some excellent birds made their appearance. In Carriers, Blacks were first and Duns second, the cup for the best pair being awarded to the former, although the best cock in the Show was that of Mr. Taylor, but the hen was very poor. Among Pouters Blues were first and Reds second; and in Barbs Yellows were first and Blacks second. The first in Jacobins were very good Reds, and the second Yellows. It is seldom our lot to see such a pair of Turbits as were those in the first-prize pen; they were Blue, and as nearly faultless as possible. Antwerps were poor, with the exception of the first-prize Duns. In common Tumblers capital Black Mottles were first, and very sound-coloured Black Balds second. Fantails were also good. Those shown by Mr. Loversidge were very small, and fine in quality. In Owls the winners were all foreign Blues, most of the birds in the class being very good. There was also a class for Runts, the first in which were Silver and the second Blue. In the Variety class Master Dawson was first with a most exquisite pair of plain-backed Ice Pigeons which for quality and condition are not to be excelled. Second came a handsome pair of a new variety known as Bagdad. These were similar to a White Dragoon in some points, but much longer, stronger, and curved in beak.

Spanish (Black)—1 and 2, T. C. & E. Newsbit, Epworth. *hc*, W. Smallwood, Wolverhampton; H. Beldon, Gottstock, Bingley.
Dorkings.—1, W. H. King, Rochdale. 2 and *c*, J. Newall, Clifton, York. *hc*, W. H. Ross.
Cochin-China.—1, H. C. & W. J. Mason, Drighlington, Leeds. 2, H. Beldon. *hc*, E. Leech, Rochdale; H. Beldon; W. Mitchell, Birkenshaw.
Brahma Pootra.—1, W. Schofield, Bradford. 2, W. Firth, Birkenshaw. *hc*, H. Beldon (2); J. Holmes, Whitecotes, Chesterfield. *c*, E. Leech.
Poland.—1 and 2, H. Beldon.
Game (Red).—1, J. Spencer, Clayton, Bradford. 2, M. Fortune, Morton Banks. *hc*, E. Aykroyd, Eccleshill, Leeds (2); J. Hird, Fearncliff, Bingley; J. Hodgson, Bradford; E. A. Johnson Wath-upon-Dearne. *Cock*.—1, E. Aykroyd. 2, J. Oldfield, Bradford. *hc*, W. H. Wood, Middleton, Manchester; W. Spencer, Haworth; E. Aykroyd.
Game (any other variety).—1, W. Fell, Adwalton. 2, H. C. & W. J. Mason. *c*, W. Spencer; J. W. Thornton, Bradford.
Hamburgh (Golden-spangled).—1, H. Beldon. 2, J. Rollinson, Lindley, Otley. *hc*, J. Newton, Silsden; J. Rollinson; H. Beldon.
Hamburgh (Silver-spangled).—1, H. Beldon. 2, Ashton & Booth, Broadbottom, Mottram. *hc*, T. Fawcett, Baildon; H. Beldon.
Hamburgh (Golden-pencilled).—1, H. Beldon. 2, J. Rollinson. *hc*, S. Smith, Northowram, Halifax; H. Beldon.

HAMBURGH (Silver pencilled).—1 and 2, H. Beldon.
HAMBURGH (Black).—1, J. Moore, Bingley. 2, J. Calvert, Baildon. *hc*, H. Beldon; T. Lofthouse; W. Preston. *c*, J. Smith; R. Fearnley; — Lord.
BANTAM (Game).—1, G. Noble. 2, T. C. & E. Newbitt. *hc*, R. Frew. *Cock.*—1, J. Oldfield. 2, G. Noble. *hc*, T. C. & E. Newbitt; S. Smith; W. F. Addie. *c*, R. Frew.
BANTAM (Black).—1, R. H. Ashton. 2, J. Walker. *c*, J. Riley.
BANTAM (Any other variety).—1, R. H. Ashton. 2, H. Beldon.
ANY OTHER VARIETY.—1, C. H. Smith (Crève-Cœur). 2, H. Belden. *hc*, J. Rhilson (Crève-Cœur); J. F. Leversidge.
DUCKS (Rouen).—1, E. Leech, Rochdale. 2, L. H. Ricketts, Banwell. *hc*, J. Newton, Silsden; J. W. Smith, Otley.
DUCKS (Aylesbury).—1, E. Leech. 2 and *hc*, J. Hedges, Aylesbury. *c*, T. P. Carver, Langthorpe, Boroughbridge.
DUCKS (Any other Variety). 1, W. Binns, Pudsey (Bahamas). 2, H. B. Smith, Broughton, Preston. *hc*, W. Binns (Ruddy Shells and Mandarins); *hc*, H. B. Smith.
TURKEYS.—1, E. Leech. 2, J. Simpson, Spofforth Park, Wetherby. *hc*, C. W. Dovener, Ripon.
SELLING CLASS.—1, J. Newton. 2, H. Beldon. *hc*, J. Berry, Silsden; H. C. and W. J. Mason, Drighlington, Leeds; J. W. Smith; W. Scholefield, Bradford; J. Powell, Bradford. *c*, J. Smith, Gilstead, Bingley.
BEST PEN IN GAME CLASSES 1, and 82.—Cup, E. Aykroyd, Ecc'shill.
BEST PEN OF POULTRY IN THE SHOW, CLASSES 80, 81, and 82 EXCEPTED.—Cup, H. Belden, Goitstock.

PIGEONS.

CARRIERS.—1 and 2, E. Horner, Harewood. *hc*, G. J. Taylor, Huddersfield. *c*, S. Holroyd, Lees, Manchester.
POUTERS.—1 and 2, E. Horner. *hc*, G. J. Taylor.
BARBS.—1, S. Holroyd. 2, E. Horner. *hc*, E. Horner; G. J. Taylor; S. Holroyd.
JACOBINS.—1, G. J. Taylor. 2, E. Horner. *hc*, R. Frew, Kirkcaldy; E. Horner.
TURBITS.—1, H. G. Poole, Westgate, Bradford. 2, E. Horner.
TUMBLERS (Short-faced).—1, E. Horner. 2, J. A. Winstanley, Preston.
ANTWERPS.—1, E. Horner. 2, L. Whitaker, Addingham. *hc*, J. Fortune, Morton Banks; H. G. Poole; P. Wear, Otley (2); W. Ellis, Idle, Leeds.
TUMBLERS.—1, D. Riddiough, jun., Bradford. 2, A. Bentley, Baildon. *hc*, E. Horner.
FANTAILS.—1, J. F. Leversidge, Newark. 2, E. Horner. *hc*, E. Horner; L. H. Ricketts.
OWLS.—1, G. J. Taylor. 2, E. Horner. *hc*, E. Horner; A. Ashton, Middleton.
RUNTS.—1 and *hc*, J. Fisher, Barrow-in-Furness. 2, W. C. Dawson.
ANY OTHER VARIETY.—1, W. C. Dawson. 2, D. Riddiough, jun. *hc*, E. Horner; A. Saddington.
BEST PEN.—Cup, E. Horner.

The Judge was Mr. E. Hutton, Pudsey, Leeds.

TESTIMONIAL TO MR. P. H. JONES.

WE have just had the pleasure of placing in the hands of Mr. Jones a very handsome silver gilt cup that has been subscribed for by twelve of the lovers of Pigeons resident in "the north countrie."

The Northern Columbarian Society of Newcastle-upon-Tyne last year held their first Show for young birds only, and Mr. Jones was selected to fill the office of Judge. In judging he acted so as to gain the esteem of every member present, and some of the members of the Society subscribed for a testimonial to his most upright manner in judging. The following gentlemen are the subscribers:—E. E. M. Royds, Rochdale; W. B. Van Haansbergen, Newcastle; M. Ord, Sands, Ferryhill; T. Rule, Durham; T. Waddington, Blackburn; W. E. Easten, Hull; F. Graham, Birkenhead; J. Guthrie, Hexham; J. P. Taylor, Newcastle; H. O. Blenkinsop, Newcastle; W. R. Blenkinsop, Newcastle; and J. G. Dunn, Newcastle. The cup has engraved upon it the Newcastle coat of arms, and underneath this inscription:—"Judge's Cup, Northern Columbarian Society, Newcastle-upon-Tyne, First annual Show, December, 1871. Presented to P. H. Jones, Esq., Fulham, London, on behalf of the subscribers, by John G. Dunn, Honorary Secretary, and W. R. Blenkinsop, Honorary Treasurer to the Testimonial."

Mr. Jones has forwarded the following acknowledgment, addressed to J. G. Dunn, Esq.:—

"I beg to acknowledge the receipt, through the Editors of THE JOURNAL OF HORTICULTURE, of a silver gilt cup, offered to me by members of the Northern Columbarian Society as a mark of respect, and in appreciation of my conduct as Judge at the Exhibition of the Society at Newcastle-on-Tyne in December last.

"In accepting this testimony of approval, which I do with feelings of gratitude, I look upon it as the recognition of a principle which I trust will always guide me whenever called upon to officiate in a similar capacity, and which will not only satisfy my own conscience, but will, I feel sure, always meet with the approval of all true fanciers; and while repudiating any claim to special recognition of services performed in the discharge of a duty, cannot help feeling and expressing the great gratification I have in acknowledging the receipt of this expression of good feeling towards me from the members of your Society.

"I beg you will convey to the subscribers my appreciation of the compliment they have paid me in presenting me with this very elegant and valuable cup, and beg to assure them it will always be looked on by me with feelings of pride and satisfaction. Wishing the Northern Columbarian Society a long and prosperous career, I am, &c.—P. H. JONES."

PIGEONS GOING LIGHT.

I CANNOT think Pigeons going light is attributable to worms. For the last five years I have been trying to ascertain the cause, and have opened upwards of twenty birds obtained from several different lofts, and also some of my own. I think there is something wrong with the gizzard, and I am inclined to think if anything can be found to act on that we should have no more "going light." Whenever I find a bird sitting in a corner with its head drawn between its shoulders, and if frightened it runs along the floor like a Goose with outstretched neck, instead of strutting or flying away, I give it a piece of green vitriol about the size of a pin's head, and two days afterwards repeat the dose. The day after that I give cod-liver oil. I have tried many remedies, but find this the most effectual. I recommended it to a friend a few weeks ago, and he has used the vitriol with great success. Even this I believe to be of no use unless the bird is seen to at once. —J. T. C.

SILVER DRAGOONS' BARS.

As my name has been brought in question in a letter from Mr. Allsop, which appears in your last impression, I shall feel obliged by your allowing me to say a few words in reply. Mr. Allsop asserts that I took the first prize for Silver Dragoons at Birmingham in 1867-8-9, at Manchester in 1867, and that I bred the bird with which Mr. Graham was first at Birmingham in 1870, all the birds so taking prizes having brown bars. All this is perfectly correct, but I can safely affirm there was not a black-barred Silver at any of the shows enumerated. Had there been, all I can say is the judges would have been decidedly at fault in awarding the prizes to brown-barred birds, whether to myself or anyone else. It is only within the last two or three years that I have been able to obtain black-barred Silver Dragoons; until then I was obliged to rest satisfied with the best Silvers I could get, even though brown in the bar.

Mr. Allsop is certainly at fault in stating that the Silver Dragoons exhibited at the last Crystal Palace Show by Mr. Graham had brown bars. I perfectly recollect the pair of birds alluded to; not only were they black-barred, but very superior in all points, and but for their bad condition (being in moult) would certainly have been awarded the first prize.

In conclusion, I again express my opinion that Silver Dragoons should decidedly have black bars, and wherever I may be called upon to judge, I shall certainly endorse such opinion by awarding prizes to black-barred Silvers in preference to their brown-barred brethren.—JONES PERCIVALL.

EVENLY-MARKED CANARIES AND MULES.

MR. HAWMAN, in your publication of the 18th inst., appears to attach some importance to the fact that I did not on the 14th of March include birds simply having a cap in my category of evenly-marked birds. If a bird had a perfectly formed elliptic cap, I should certainly not hesitate to do so. My simple object is to have birds properly classified; and although I included birds with "eye marks alone," and cap alone, as being evenly-marked, I do not think that many fanciers would be found who would waste their money by entering birds so marked in an evenly-marked class.

My own idea of a standard of perfection is a bird with nine clear flight feathers in each wing, and the remaining secondaries black or dark green, with eye marks to correspond; but I know that it is quite as difficult to breed a bird with an elliptic cap as eye marks, and probably more so; and I know further, that birds so marked are quite as generally fancied, and as highly esteemed. I have no personal feeling in the matter beyond fixing a general and reliable rule for future guidance.

In Mr. Hawman's reply to my former article I see no valid argument in favour of excluding the cap-marked birds from the evenly-marked classes, but, on the contrary, I think they are in every way confirmatory of my opinion. In regard to his statement (which, by the way, is erroneous, as the bird referred to was claimed by Mr. Beloe, and not Wallace & Beloe, as at that time we did not exhibit birds conjointly—however, the fact is the same), Middlesbrough, in Yorkshire, the very town that wishes to discard the beautiful, symmetrical, graceful, elliptic cap, and to denounce it as a blot of Nature—a daub—actually permits a bird so disfigured (?) to compete as an even-marked bird; and to make bewilderment doubly bewildered, they procure the services of a well-known Yorkshire judge—Mr. Calvert, of York—a judge out of the very core of Yorkshire, who not only concedes the fact that a capped bird is evenly marked, but as a confirmation of his approval he awards the bird second honours, and this, be it remembered, in the very face and over the heads of good four-marked birds. What stronger argument can I adduce in favour of my opinion? What greater proof than this?

Again, Mr. Hawman informs us that he has seen "excellent Mules with beautifully-formed caps that were never noticed in an exhibition even by judges who at the same exhibition had awarded prizes to cap-marked Canaries in an even-marked class." Surely this is overwhelming proof in my favour, and further, it confirms the statement made by me in my former article—that Mules were exceptional upon the grounds therein explained.

I am sorry that no other experienced fancier has taken up the question and added his views. The only solution, therefore,

that I can see out of this vexed question will be for every committee of management to have inserted in their schedule a marginal note, fully explaining the nature of the marks to be regarded as even-marking, and *vice versâ*. The adoption of this simple but effective plan will ultimately give a "key to the situation," and will extricate both exhibitors and judges from a dilemma neither pleasing nor profitable.—Robt. C. Wallace, *Berwick-on-Tweed*.

THE MAGPIE PIGEON.

In describing this variety of Pigeon it is not necessary to enter into details of the breed; indeed, its chief points and peculiarities may be soon enumerated. It is not to be numbered amongst the strikingly beautiful kinds, nor is it conspicuous for any remarkable or peculiar feature, nor is it even a novelty to us, for we have long been familiar with it, and petted and admired it, and though very pretty, there is nothing about it especially attractive. It has, however, merits which are not lost sight of or forgotten, for happily our fancies differ, sometimes materially so, and amongst this diversity of thought the Magpie comes in for a share of admiration and a place in our hobby house.

The accompanying engraving will show the chief points of

Magpie Pigeon.

the breed, which come under two heads—viz., colour and markings. The engraving, together with the following brief description, will suffice to show the points most desirable.

In general formation the Magpie resembles our common Dovehouse Pigeon. The head and beak are of a Dove-shaped spindle character, the beak being thin and compressed at its base, and is hard, horny, and sharply curved towards its point; the forehead is rather prominent; the legs of moderate length and free from feathers; indeed, the Magpie has no ornamental outgrown feathering, but is a clean, smooth-surfaced bird, tight-feathered, sleek, smart, and active.

Its markings should be as follows:—Head, neck, breast, and saddle black or coloured, terminating in a clear well-defined line. Across the breast, around the saddle, and down the back to the extremity of the tail, and underneath as far as the vent, should also be black or coloured to a clearly-defined line. The entire wing, belly, and thighs must be pure white. The line of separation in the markings is an important point. The white must be pure, and the black deep and glossy, richly iridescent, or, as it is called amongst fanciers, "full of colour." This resplendent richness should not be merely confined to the neck, but ought to extend throughout the black feathering of the bird. Sometimes (for instance, in very old birds of high quality) the metallic gloss will be found to the very extremity of the tail. This "colour," as it is termed, is chiefly applicable to the black variety, though Reds are often seen fairly besprinkled with glossy colour, and when such is found other good points as often accompany it, which, of course, greatly enhance the value of the bird.

Magpies are of four colours—viz., Black, Red, Yellow, and Blue. Good birds of the three colours last named are rather scarce. The Reds and Yellows are apt to come of a dingy hue upon the back and throughout the tail. This is a fault which often shows itself in most Pigeons with coloured backs and tails, or with coloured flights. A dingy drab, a slaty colour, or a muddled "dun," too often comes where we hope for a clear and pure colour. Blacks and Yellows seem to be the favourites, probably from the fact that the best Magpies are to be found of those colours.

The eye of the Magpie is generally of a "pearlish" colour; though many good birds have eyes of an orange colour, the "pearl" or pearlish eye is preferred.

Purity and richness of feathering, together with exact marking, are the chief features of the breed.

In the Black and Blue varieties the beak should be very dark, and in the Reds and Yellows it should be light-coloured.

Magpies are pretty fair breeders, and breed, as a rule, true to character, but, like other varieties, the whole of their progeny are not as we could desire.

They are not seen to advantage within the limited bounds of

an ordinary aviary; they show off to much greater advantage when at large at a country home in a pure atmosphere, where they can be seen foraging for their living. It is there that they command our admiration to the full, for having a hardy constitution they thrive wonderfully, and look well and do well on humble fare. Picture in your mind's eye five pairs of each variety of Magpies only (forty birds) strutting actively about on a well-trimmed lawn, or even at a homely farmstead, in lieu of the thorough mongrels which are allowed to prey upon the farmer's grain, consuming ten times their value in a year, whilst some of the hardy, beautiful, prolific, and also profitable varieties are subjected to confinement for life, or partial extermination, through want of full appreciation by our country cousins, who, having greater facilities than townsfolk, should cultivate our domestic Pigeons with much more care and attention.—J. W. Ludlow, *Secretary, Birmingham Columbarian Society.*

CRYSTAL PALACE GAME AND BANTAM SHOW.

This Show, which opens to-day and will be continued throughout the whole of to-morrow, is, we understand, the first of its kind. It owes its origin in a great measure to the exertions of Mr. Harrison Weir, who no doubt looks with satisfaction upon the goodly number of pens at present ranged along the middle of the northern nave. In spite of this being the breeding season, when fanciers do not care to send their birds from home or subject them to unnecessary excitement, there is nevertheless a most satisfactory earnest of what this Show would really be were it held during a more favourable time of the year.

Among the special classes we remarked a grand hybrid Turkey, obtained between the Ocellated Turkey of Honduras and the wild Turkey of North America, a Reeves' Pheasant, two fine Silver cock Pheasants, two pairs of Chinese Quails, five pens of Black Game, and a hybrid between the Gold and Silver Pheasant. Of the Bantam and Game classes we cannot speak minutely here, but the entries for both were numerous and good. In closing, we would congratulate the promoters of this interesting Exhibition upon the immediate fruits of their endeavours, and we hope that they will in future meet with success proportionate to their increasing exertions.

AMONG THE CLEAR JONQUES.

I have seen the sun shine, and I have been among the Canaries. Not that the sun doesn't shine here after a fashion, and do its best to make things look bright and cheerful; but what with the biting east winds and our humid, murky atmosphere, his kindest endeavours seem thwarted, and it is late before the country seems to wake up from its long winter sleep. It was five o'clock in the morning when the mail dropped me at Peterborough *en route* for Norwich; and as I wended my way through the quiet little town to the station on the far side, it seemed as if I were in a place many degrees farther south, where the season was a month in advance of us at our home in the north. Exposed as we are to the strong breezes of the German Ocean, the mild balmy air of the south is something to welcome, while the quietness of an agricultural district is an agreeable change from the stirring activity of a manufacturing town. The two hours I had to stay before I could go on to Norwich were under the circumstances not tedious. I should have liked some breakfast, certainly, but where to get it was the question. My exploration of the cathedral town resulted in my arriving at the conclusion that it did not rise so early as five. A woman who was setting out some breakfast crockery in the market place, two street sweepers, and an attendant with a huge watering-pot, whose function it was to lay the dust, and myself, had sole possession of the streets. Four hours' further run by Wisbech, Lynn, and Dereham, through a country which, if not very romantic in its scenery, had, on that sunny spring morning, great beauties for me, and I was landed at the old city I had not visited for twenty years. Twenty years, and especially the last twenty, make great changes in towns. Some become grown out of all knowledge, and where stood green lanes, and gardens, and corn fields, now stand long streets of houses, thickly tenanted by the increasing population which follows in the track of manufacturing enterprise. Nor is Norwich any exception to the rule, though its old castle, and the cathedral with its lofty tapering spire, still stand in the same place, and greet one like old friends. I have many old memories connected with the city and neighbourhood. I used to spend my vacations in a small village about midway between there and Cromer. I remember that market day used to be a great institution, and we—that is, "B. B." and I (I believe they were afraid to leave us at home), used to occupy the back seat of the dog-cart. And I put it candidly to anyone who has sat with a lady on the back seat of a dog-cart, even when the foot-board has been chained up to the last link, whether there is not a risk of her slipping off, and whether it does not become a duty to see that she doesn't? I always attended to that duty. Those were jolly days. The last time I was in the neighbourhood it was in the fall of the year. I strolled into Marsham churchyard early one morning. I had two reasons for doing so; one was, that holding on so tight on that dog-cart had ended at Marsham church, and I was just a little wishful to take a peep at the old pile again; the other was, I expected to see the sexton at work at his gloomy calling. He was down in a deep grave he had dug with extreme care, and was busy removing the soil from the inscription plate on a coffin which had lain there many years. That day the genial soul who used to drive us to Norwich on market days was laid with his wife. I have never seen the old place since.

And I have been among the Canaries. Without disparagement to breeders in other towns I think I may safely say that Norwich is the head-quarters of the bird which bears its name, and many a golden gem which has figured as the property of a speculative Canary exhibitor first saw daylight in the "mew" of some Norwich weaver or shoemaker. The Canary interest in Norwich is very conservative, and I was indebted to Mr. J. Mackley for the privilege of being admitted within the charmed circle. Many of the breeders, certainly the principal of them, are united in clubs with some very stringent rules as to disposing of high-bred birds. Indeed, the truism that money will buy anything hardly holds good of a hard-working Norwich weaver's stock birds. They are a class of men whose ambition is to produce those wonderful birds which are the object of admiration at our shows; and just in proportion as they will deprive themselves of luxuries, if not of necessaries, to carry out the object of their lives, so in proportion are they not to be tempted by money to part with birds which it has taken them possibly years to bring to perfection. With men of this stamp there is a point, to go beyond which is to insult. Mr. J. Mackley, however, who takes immense interest in the fancy, and keeps a watchful eye over it, smoothed over all difficulties, and I ascended many a staircase and crossed the threshold of many a *sanctum sanctorum*, which I never should have done without his "open sesame." One cottage I have in my eye. Down-stairs, sitting on a stool winding off silk and detecting the slightest flaw in the thread as it passed through her delicate fingers, was a decent "canny" woman surrounded by such of nine children as remained at home. Up-stairs, up a winding lighthouse kind of staircase, was the piece of furniture to be found in almost every wayside cottage—the loom, on which are manufactured the silks and other stuffs for which the city of Norwich is famed. Here the head of the house was busy on a piece of poplin, of which he told me he could weave 15 yards in a day. But they were singing away through a thin wood partition which separated the bird-room from the workshop, and how was it possible I could make any show of taking much interest in manufacturing statistics, when I knew I was on the eve of penetrating some of the great mysteries of the fancy? It's no use telling you what I saw, for I came away as I went, with my empty store cage under my arm. But I got a pair next day, and an odd hen—sister to some great celebrity, whose pedigree was duly chronicled in mysterious notches on her flights.—W. A. Blakston.

(To be continued.)

EARLY SWARM.

The following may prove useful to your readers, and may afford an opportunity of determining whether the occurrence is without precedent. On the 11th inst., on looking round my bee house as usual before leaving it for the night, I discovered a cluster of bees, resembling a small swarm, beneath a board placed at an angle above the pitch board of the hives. This was about 6 P.M. I immediately took a frame, fitted with comb, from a Woodbury hive I had in readiness, and having placed a little syrup upon the comb, I brushed on the bees with a feather. The lateness of the evening and the low temperature had so benumbed many of the bees that I did not succeed in hiving more than one-half, probably in number not more than five hundred, the rest fell, and died from exposure. About an hour afterwards, on close examination, I discovered the queen apparently in perfect health, and seemingly contented in the midst of the bees saved.

I am now feeding with syrup, and hope to found an early colony. Can any of your readers tell me if I am likely to succeed? I was afraid at first I had lost a queen from one of my box hives, but such does not appear to be the case, as perfect harmony seems to reign within. I may add two out of five hives in my bee house are full to overflowing, and that comb-building has already commenced.—John B. Cars, *Littlehampton.*

Birmingham Summer Poultry Show.—This is to be held in June. We hope it may be a success, but we have no particulars at present.

OUR LETTER BOX.

Ducks' Eggs Unfertile (*A Disappointed Poultry-woman*).—The birds being "very fat," not only has a tendency to prevent fertility, but to interfere with laying, and to endanger the life of the layer. This applies to birds of all kinds.

Minorcas (*Fairplay*).—To insert your letter would be a good advertisement for the party you name. Write to him and ask for the particulars, and let us know the reply.

Scans on Spanish Cock's Face (*L. H. R.*).—Dress the face with citron ointment. It sometimes comes from the weeping of the eye, and it is sometimes caused by the hens pecking it. Strange to say, this seems an attention much appreciated by the cocks. We are disposed to think this is the cause of the complaint in your case. The white face of a Spanish cock when damaged always turns brown, but when it is caused by weeping it seldom bleeds when removed. When it comes from pecking it always does. In either case put the bird by himself for some time, and dress the face with citron ointment. Weight is a desideratum but not an essential in a Spanish fowl. Face and comb are the essentials.

Brahma Cockerel (*F. T. W.*).—We counsel patience. If your bird is as old as you say, there can be no doubt as to his being all you require. How many hens does he run with? At what time of the day do you make your observations? The proper time is when they are let out in the morning. That should be now at five o'clock. Be in attendance the morning after you receive this, and it will solve the doubt. Have you set any eggs from him?

Diarrhœa in Fowls (*Poultry*).—Your feeding has been altogether bad, and we cannot understand why you make such mixtures. Discontinue them, Feed morning and evening with ground oats or barleymeal slaked with water, and midday with maize. Throw down three or four barrowloads of road grit in the gravelled run, and give sods of grass. Feed your chickens on bread and milk, curd, chopped egg, cooked meat cut up fine, and bread crumbs. If they are not near grass, give them every day a large sod of growing grass cut with plenty of mould.

Brown Red Game Cock's Eyes (*Inquirer*).—Their colour should be gravel or dark red.

Weight of White Cochin Cock (*Idem*).—Should weigh from 8 to 10 lbs., and a hen from 6 to 8 lbs.

Dorking Chickens Drooping (*W. F.*).—If the present weather lasts, human beings will be the same. Give them plenty of bread and ale to eat, and ale to drink. Let them have chopped egg and cooked meat chopped fine. You describe no other complaint, but if they gape give them a pill of camphor. If their appearance is that of general discomfort give them a good heap of road grit to dust and bask in. When they are convalescent let them have only camphor julep to drink.

Dark Brahma's Plumage (*Country Parson*).—There is no doubt that the bird from which these feathers were plucked belong to the class of Dark Brahmas. Judging from the dark feathers we should say she was a little too dark. That is a common fault now-a-days; and if we breed to get rid of it, we get light, almost white necks. The Pencilled or Dark Brahma, as distinguished from the Light, should be pencilled all over delicately; the tail and wings rather darker than the body, and the neck striped black and white. Bone dust is not necessary for young chickens. If it be, where do the Pheasants and Partridges find it?

Créve-Cœur Cock's Tail (*L. W.*).—It is a fault in every cock, except a Sebright Bantam, to have a squirrel tail—that is, turned over his back; but if we may be allowed to palliate faults in any bird, it would be an approach to squirrel tail in a Créve-Cœur. It would be better without it, but many of them have a tendency to carry their tails up. We would be explicit; we would not keep a squirrel-tailed cock if we had another.

Exit end of an Egg.—"*W. R. A.*" says, "I do not know whether it is the experience of other amateurs or not, but one-half of the eggs that I have hatched this year have hatched at the small end of the egg. I have a hen to come off to-morrow, and when I examined her nest this morning it was the same—one-half of the eggs were chipped at the small end."

[Although we hatch many hundreds of chickens, and fancy we note every thing about them, we have not yet noticed where the chicken makes its exit. We will do so.]

Exhibiting Eggs (*Jack*).—A nest of eggs exhibited should be all the same breed. They should be good specimens of it. Thus in Spanish they should all be large; in Cochins and Brahmas they should be chosen not only brown. but of the same shade of brown; in Dorkings and Hamburghs they should be all large, alike in shape and form, and scrupulously white; and so on. Every nest should be made up of eggs, not only good specimens of their breed or class, but the best specimens of it. In our opinion a mixed nest should be disqualified.

Wing-disease in Pigeons (*Galway Amateur*).—You bird has this disease common among fancy Pigeons. It will not die, but the wing will probably be stiff for life, but being a hen she will breed just as well. The best plan we have found is simply, on first discovering the swelling of the joint, to draw the flight feathers of that wing. This seems to relieve the inflammation, and by the time they have grown the bird is well; but this has always been when the case was taken in hand early. Let us know if your bird quite recovers, as we should like in that case to publish your treatment for the benefit of the fancy.

Rat-proof Pigeon Boxes (*C. R.*).—No doubt the old walls are, as you say, honeycombed by rats, hence your loss. Probably the walls were of the old loose-fitting stone character. A wall of close-fitting bricks would secure you. Then at the back of each hole we should fix a box of strong wood, with half of the back opening like a door for the inspection of the nests, cleaning them, &c. Such a wall and such boxes would be secure against rats. Slate or iron would be very cold. If you could make the boxes 2 feet square all the better. Have a shelf halfway up on which put a nest-pan in which the birds could lay and sit, while there were half-grown young ones below. If you do this you will raise twice as many young ones, for if you do not the old ones will lay in the old nest with the growing-up young, the eggs be chilled, and the parents disturbed by the young teasing them to be fed at all times. Plenty of room is the secret of Pigeon success as to breeding and rearing. The shelf halfway up is an admirable plan, as the young cannot fly up to it and bother their parents, and when they can fly they will fly out and feed themselves. You are right as to the alighting-board being divided.

Maltese Pigeons and Removing One Old Bird (*A. W.*).—Maltese Pigeons are not mentioned, we believe, in any work on fancy Pigeons. They have of late years appeared sometimes at a show among "Any other distinct variety," and at Bristol, last January, took a prize. When young birds are a month old, or earlier, you may safely remove one of the old ones. We have a fine young one brought up wholly by the hen since it was a fortnight old, the cock having died by accident.

Earthenware Nest-pans for Pigeons (*J. T. C.*).—We do not know any place where these are made as a speciality, but, indeed, they are so heavy and so cheap that they would not pay for carriage. Recently we had some dozens made at a pottery that happens to be near us. We took Brent's "Pigeon Book" to the maker, showed him the picture of the nest-pan in it, and gave the following written instructions:—"Make them 8 inches across at the top inside, 3 inches deep, measuring from the deepest part, sloping at the bottom inside like a hand-basin. Let them be of rough earthenware and heavy." The man had never seen such things before, but made them excellently, charging us 2½d. a-piece. This size does well for Tumblers and ordinary varieties. Pouters would need them 10 inches across. Form in them a solidly-lying nest of short straw; beneath it, if you like, put a little sawdust.

Error—Silver Dragoon Bars.—On page 339, column 1, line 44 from top, for "blue" read "thirteen."

METEOROLOGICAL OBSERVATIONS,

Camden Square, London.

Lat. 51° 32′ 40″ N.; Long. 0 8′ 0″ W.; Altitude 111 feet.

Date.	A.M.					In the Day.				
1872. April.	Barometer at 32° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 ft.	Shade Temperature.		Radiation Temperature.		Rain.
		Dry.	Wet.			Max.	Min.	In sun.	On grass	
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 17	29.808	47.8	46.0	N.	51.8	60.8	40.0	1 3.2	37 4	0.020
Th. 18	29.801	46 8	42.7	N.W.	50.1	54.2	38.2	103.4	35.1	0.040
Fri. 19	29.903	42.8	39 7	N.	49.7	52.1	37 3	104 1	34.2	—
Sat. 20	29.691	44.7	40 2	N.	48.4	53.2	29 4	105 2	29.0	0 310
Sun. 21	29.170	37 7	37.7	N.	48 5	56.7	35 2	84 1	33.8	0.090
Mo. 22	29.184	48.1	44 6	S.E.	48.5	57.2	37.0	104 3	38.1	0.030
Tu. 23	29.340	51.3	46.6	S.	49.0	59.8	42.1	107.2	39.6	0.060
Means	29.558	45.6	42.5		49.4	56 3	37.1	101.6	35.3	0.550

REMARKS.

17th.—Cool, cloudy at times, showers during the day, but starlight and bright at night.

18th.—Cold cloudy morning, shower with a little hail at 9.30 A.M., sunshine at intervals, but several showers, starlight night.

19th.—Sunshiny and brighter on the whole, a little hail soon after noon, no rain to measure, beautiful moonlight night.

20th.—Cold early, but beautifully bright morning, came over cloudy at 9.45 A.M. for about an hour, then fine and bright sunshine all day, and bright at 9 P.M., but rainy, windy, and wild during the night.

21st.—Cold, cloudy, and wet morning, fine rain, but not much in quantity till 1 P.M., fine and bright till 3 P.M., began to rain sharply at 4.30 P.M., finer after 7 P.M.

22nd.—Cloudy morning, shower at 10.15 A.M., hail at 3.20 P.M., bright sunshine at intervals.

23rd.—A warmer morning, sunshiny but rather cloudy at times, windy, but on the whole a fine pleasant day.

Barometer low, but in other respects true April weather. Temperature about 5° below that of last week.—G. J. Symons.

COVENT GARDEN MARKET.—April 24.

Supplies moderate, and a fair attendance, the auction sales of French goods bringing together a great number of the trade, who buy for distant markets. Hothouse Grapes and Strawberries are good and command fair prices. The supply of out-door produce is about equal to the demand; good sound Regents have considerably advanced both here and at the depôts, quotations being at £10 to £12 per ton.

FRUIT.

	s.	d.		s.	d.		s.	d.		s.	d.
Apples .... ½ sieve	3	0	to	6	0	Melons .... each	0	0	to	0	0
Apricots .... doz.	0	0		0	0	Mulberries .... lb.	0	0		0	0
Cherries .... per box	6	0		10	0	Nectarines .... doz.	0	0		0	0
Chestnuts .... bushel	10	0		20	0	Oranges .... ℔100	4	0		10	0
Currants .... ½ sieve	0	0		0	0	Pears, kitchen .... doz.	4	0		6	0
Black .... do.	0	0		0	0	dessert .... doz.	8	0		15	0
Figs .... doz.	15	0		0	0	Pine Apples .... lb.	6	6		10	0
Filberts .... lb.	0	6		1	0	Quinces .... doz.	0	0		0	0
Cobs .... lb.	0	6		1	0	Raspberries .... lb.	0	0		0	0
Grapes, hothouse .... lb.	10	0		20	0	Strawberries .... ℔lb.	8	0		20	0
Gooseberries .... quart	2	0		8	0	Walnuts .... bushel	10	0		25	0
Lemons .... ℔100	7	0		10	0	ditto .... ℔100	1	0		2	0

VEGETABLES.

	s.	d.		s.	d.		s.	d.		s.	d.
Artichokes .... doz.	4	0	to	6	0	Leeks .... bunch	0	2	to	0	0
Asparagus .... ℔100.	4	0		8	0	Lettuce .... doz.	1	0		2	0
Beans, Kidney .... per 100	1	6		2	6	Mushrooms .... pottle	1	0		2	0
Broad .... bushel	0	0		0	0	Mustard & Cress .... punnet	0	2		0	0
Beet, Red .... doz.	1	0		3	0	Onions .... bushel	2	0		4	0
Broccoli .... bundle	0	9		1	6	pickling .... quart	0	6		0	6
Brussels Sprouts .... ½ sieve	0	0		0	0	Parsley per doz. bunches	3	0		4	0
Cabbage .... doz.	1	0		1	6	Parsnips .... doz.	0	9		1	0
Capsicums .... ℔100	0	0		0	0	Peas .... quart	3	0		6	0
Carrots .... bunch	0	6		0	0	Potatoes .... bushel	3	0		5	0
Cauliflower .... doz.	2	0		6	0	Kidney .... do.	3	0		5	0
Celery .... bundle	1	6		2	0	Radishes.. doz. bunches	0	6		1	0
Coleworts.. doz. bunches	2	0		4	0	Rhubarb .... bundle	0	3		1	6
Cucumbers .... each	0	6		1	6	Savoys .... doz.	0	9		1	6
pickling .... doz.	0	0		0	0	Sea-kale .... basket	1	6		2	4
Endive .... doz.	2	0		0	0	Shallots .... lb.	0	4		0	0
Fennel .... bunch	0	3		0	0	Spinach .... bushel	3	0		4	0
Garlic .... lb.	0	8		0	0	Tomatoes .... doz.	0	0		0	9
Herbs .... bunch	0	3		0	0	Turnips .... bunch	0	3		0	0
Horseradish .... bundle	3	0		4	0	Vegetable Marrows..doz.	0	0		0	0

POULTRY MARKET.—April 24.

Quiet trade, about the average of the last three or four years. Prices much like last week, with, if anything, a tendency to weakness.

	s.	d.		s.	d.		s.	d.		s.	d.
Large Fowls	4	6	to	5	0	Partridges	0	0	to	0	0
Smaller ditto	4	0		4	6	Hares	0	0		0	0
Chickens	3	6		4	0	Rabbits	0	0		1	6
Goslings	7	0		7	6	Wild ditto	0	9		0	10
Ducklings	4	0		4	6	Pigeons	0	9		0	10
Guinea Fowls	0	0		3	6	Pheasants	0	0		0	0

WEEKLY CALENDAR.

Day of Month	Day of Week.	MAY 2—8, 1872.	Average Temperature near London.			Rain in 43 years.	Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock after Sun.	Day of Year.
			Day.	Night.	Mean.	Days.	m. h.	m. h.	m. h.	m. h.	Days.	m. s.	
2	Th	Meeting of Royal and Linnean Societies.	62.7	39.1	50.9	15	31 af 4	24 af 7	13 3	after.	24	3 13	123
3	F		62.4	42.2	52.3	20	29 4	25 7	31 3	28 2	25	3 19	124
4	S		62.4	38.5	50.5	16	28 4	26 7	46 3	46 3	26	3 25	125
5	Sun	5 Sunday after Easter.	62.9	39.0	50.9	22	26 4	27 7	4 4	1 5	27	3 31	126
6	M	Entomological Society's Meeting, 7 P.M.	62.3	38.5	50.4	16	25 4	29 7	21 4	17 6	28	3 35	127
7	Tu	Zoological Society's Meeting, 9 P.M.	60.3	39.4	49.8	18	23 4	30 7	38 4	30 7	●	3 39	128
8	W	Royal Botanic Society's Spring Show.	62.6	39.6	51.1	18	21 4	32 7	57 4	46 8	1	3 43	129

From observations taken near London during forty-three years, the average day temperature of the week is 62.2°; and its night temperature 39.5°. The greatest heat was 84°, on the 6th, 1862; and the lowest cold 20°, on the 6th, 1865. The greatest fall of rain was 1.26 inch.

POTATO-GRAFTING.

[We have been applied to by "A. B. C." and others for information how this is to be done, and, as is our custom, we applied for it to a good authority, and the following is Mr. Fenn's reply.—Eds.]

GIVEN two sorts of Potatoes, one a smooth tuber having dwarf foliage, the other a Potato of fine quality, though coarse in tuber and rank in haulm—prohibitory defects, especially the latter, for garden cultivation—can these defects be remedied? I answer, A method of dwarfing the haulm and correcting the form of a coveted Potato can be accomplished by grafting an eye of the coarse tuber into a sort of finer outline, thus:—Take a sharp penknife, and scoop out with a circular-cutting motion every bud from the finer-formed tuber, and go deep enough to prevent the slightest chance of any fragment of the eyes springing again. Force a slender wooden skewer completely through the base of the Potato, allowing the ends of the skewer to remain sticking out from each side of the tuber about half an inch; then, upon the coarser Potato, single out a bud having the largest surface of skin free from other eyes surrounding it. Cut out a wedge—a shield-like shape is preferable when a sufficiency of surface can be obtained—with the sharp knife, using as little downwards pressure as possible, about half an inch in diameter, measuring across close to the bud, and diminishing the cuts to an acute angle or angles if of a shield-escutcheon form. Now, in the disbudded tuber slice-out a corresponding orifice to the shield or graft, that the latter may fit as neatly as possible into it, and exact for depth, so that the rind of the graft and that of the tuber-stock shall meet on one or both sides on precisely the same level with each other, for upon this particular hinges the success of the operation. Now take a piece of strong soft matting, or, what is better, cuba bast, and wind it round to secure the junction of the albumums; the ends of the peg sticking out from the tuber will afford facilities whilst so doing, and when tying-off at the finish. Have some pots about 6 inches in diameter, with good drainage, in which to plant the grafted tubers as the operation is completed amongst good light soil; and it would be well to place the pots in a greenhouse, or some such equable temperatmre, because in these delicate operations it is best that Dame Nature should never receive a check.

April and the beginning of May I consider the most favourable times for grafting. By the end of May the grafts will have made good progress, and the contents of the pots should then be turned out into well-pulverised garden soil; the cuba bast will probably then have become sufficiently decayed to allow of a careful examination as to whether the skins of the grafts and stocks, shields and tubers, have become cicatrised and united wholly or in part. No hybridisation can result unless this is perceived to have taken place. If so, plant and mould according to custom, and watch for variations of foliage, and for final results only after three seasons' trials and tastings of the tubers.

The above is "how to do it." Nevertheless, as I write upon this subject I cannot as yet conscientiously do so dictatorially for general practice. Although I have given seven years' consideration to the system, it must suffice at present to say that, with me, it unfolds itself most usefully to a way of dwarfing and refining into tractability good though ungainly sorts. By way of further illustration for your correspondents, let us consider such a one to be Webb's Imperial Kidney Potato, a very white-fleshed fine-flavoured sort, but the tubers are apt to become very rugged and "robin-eyed" when grown in good garden soil, and the tops then are monstrous, and consequently we have here a first-rate Potato shut out from general garden cultivation. By grafting Webb's Imperial into, say, Almond's Yorkshire Hero, which has a perfectly smooth outline of tuber, a medium haulm, and withal is an excellent garden variety, my study of the system would lead me to expect that a smoother tuber and a dwarfer top for the grafted Webb's Imperial would be the results, with a chance of even improving the quality of the tuber, which could afterwards be grown in the richest soil. I have invariably succeeded in thus dwarfing the foliage, though, in nine cases out of ten the effect upon the appearance and quality of the tubers has been disastrous. Notwithstanding, I have been sufficiently convinced that grafting does occasionally alter the character of the tubers by improving both their form and quality. This summer will, I hope, serve to convince me that these good features are permanent.

Thus far I can recommend the practice to any physiological searcher after truth, and I am justified in so doing by success, and in considering Potato-grafting to be perhaps the most valuable recent contribution to the science of horticulture. I have taken every opportunity of explaining and exhibiting to the public the results, and have met with much antagonism and incredulity, as well as a few shrieks from the gardening press, all of which I have allowed to pass by free of care, for there is plenty of room for us all to gain by positive effects; and I would prefer to give more heed to one who has tried and failed than to a thousand theoretical disclaimers.

It is very satisfactory to find that this subject gains advocates, and I will conclude these notes by quoting an appropriate paragraph from a recent letter from a correspondent relative to this matter. "I have been trying my hand at Potato-grafting upon nine sorts of tubers, and so far with success. They have been done a month, and yesterday I took them out of the pots, and having removed the ties, found that, with one exception, all had firmly united. I am working with several kinds, and shall watch the result with much interest."

I shall be glad if you will give me an opportunity here to correct a blunder I made in notices to correspondents a few weeks ago. I there recommended Paterson's Alex-

andra, as a coloured Potato; I should have said Paterson's *Albert* is a Potato of colour not nearly so well known as it deserves to be in the market.—Robert Fenn.

NOTES UPON FERNS.—No. 3.

FRONDS.

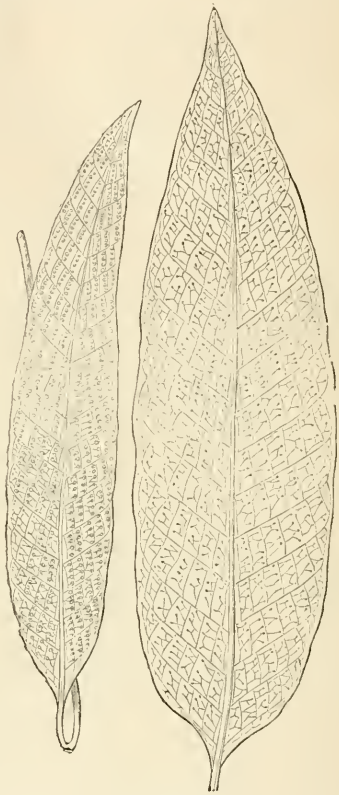
The leaves of Ferns are invariably called fronds, and may be distinguished from those of all other plants by their peculiar coiled-up (circinate) growth.

Olfersia cervina.

It frequently happens that the same plant produces two distinct forms of leaves or fronds, as may be seen in the illustration of Olfersia cervina, or that a single frond takes upon itself a variety of shapes. This modification in the form of Fern fronds is brought about by the presence of the fructification, or spore-cases, and those subject to these changes of form are distinguished by Fern-growers as *barren* and *fertile fronds*. I have heard them called male and female fronds by amateurs, but the expression is erroneous.

In the majority of the plants belonging to this order the fertile fronds do not differ in appearance from the barren ones, saving in the addition of the sori, which are either situated upon the under side or at the margins of the pinnæ. Sometimes, but more rarely, they are to be found on the upper side.

Fronds of Ferns are of various forms, varying from the simple or entire frond of Scolopendrium vulgare, Neottopteris nidus, or the various species of Elaphoglossum, to the decompound multifid ones of such genera as Thyrsopteris and Onychium. Intermediate forms of fronds are the *pinnate*—that is, when the leaf is simply cut down into segments on each side of the midrib (costa), *bipinnate* when these become again divided, and so on up to the compound frond. When the segments are not divided down to the costa or midrib, but have the divisions connected by a kind of wing they are termed *pinnatifid*, and *bipinnatifid* when again divided in a similar manner. When the leafy appendage is continued down the stem to the crown of the plant the crowns are styled sessile, but when elevated upon footstalks, the fronds are *stipitate*, as the footstalks, in the language of

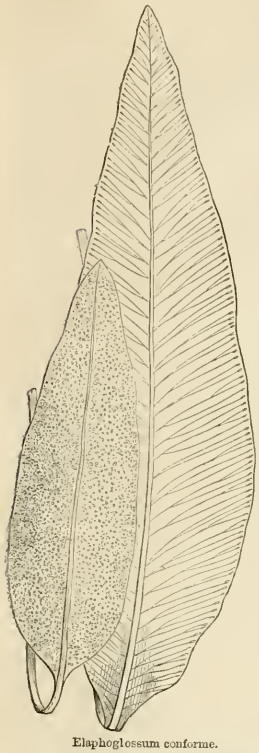


Nipbobolus lingua.

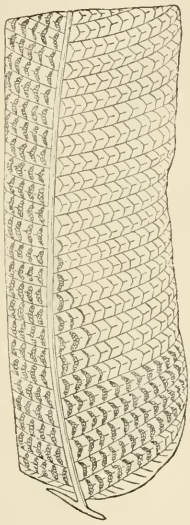
pteridologists, are *stipes;* these as they again become branched, as in bipinnate or decompound fronds, are termed the rachis.

I shall now proceed to take a cursory glance at the peculiar venation of Fern fronds, and there can be no doubt but that the veins are of more importance to the student than the same organs in flowering plants, and they consequently have been seized upon by the pteridologist as a means of classification, and when used in conjunction with other organs the venation is of great value and assistance in distinguishing genera. To make this more apparent it will be as well to give a few examples of the venation peculiar to various genera; thus in Elaphoglossum conforme we have an example of free forked veins, in which the sori in the fertile fronds cover the whole under surface. This style of venation, however, must not be taken as peculiar to Elaphoglossum, for many other genera of Ferns have free forked veins, but they differ both in style of fructification and habit of growth; as examples of this I may instance Polypodium, Pteris, and Asplenium. The veins are said to be reticulated when joined together after the manner of Hemionites palmata, the disposition of which is admirably shown in the illustration. Again, the veins are radiate when disposed in the manner of Lindsæa trapeziformis, and anastomosing

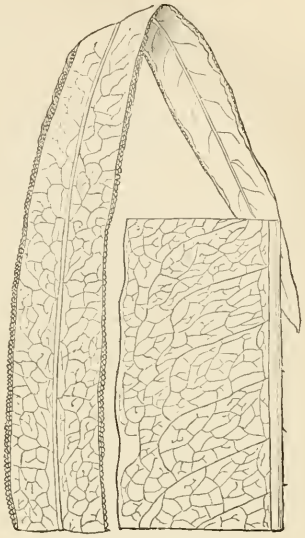
when arranged as in Dictyoxiphium panamense. Anastomosing veins are again spoken of as arcuate when they are found, as is shown in the figure of Meniscium palustre, and compoundly anastomosing when disposed as in the case of Niphobolus



Elaphoglossum conforme.



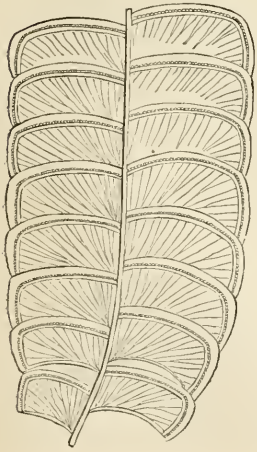
Meniscium palustre.



Dictyoxiphium panamense.

lingua; transversely anastomosing when arranged after the manner of the genus Woodwardia. The little spaces left between the veins and venules, which are of various shapes, are called areoles.

This does not by any means exhaust the various definitions which pteridologists use to distinguish the various genera, but



Lindsæa trapeziformis.

Hemionites palmata.

space will not permit me to go further into details. It has been, and is argued by some of my friends, that the system of making a great number of genera tends to increase the difficulty to the amateur in learning, but to me it appears to offer facilities rather than throw obstacles in the way—that is, if well defined and permanent characters are taken, on which to establish a genus, whilst those of a fugacious or changeable nature do without doubt lead to uncertainty, and tend to depress the mind of the amateur.—Experto Crede.

ROYAL HORTICULTURAL SOCIETY.

May 1st.

On this occasion the Show was held in a long tent on the croquet ground near the Council-room, in which latter were placed the Orchids, and, as the weather proved, no better place could have been selected. In truth, the day was one of the brightest and most exhilirating of Maydays we have ever known, and the Exhibition was worthy of the day.

Roses in pots were the leading feature of this Show, and truly magnificent they were. The specimens were beautiful in growth and foliage, and in gorgeous bloom. For nine, Mr. Turner, of Slough, was first with superb specimens of Charles Lawson, Victor Verdier, Vicomte Vigier, Céline Forestier, La France, Camille Bernardin, and Marie Baumann, along with excellent plants of Maréchal Vaillant and Paul Verdier. Second came Messrs. Paul & Son, of Cheshunt, with Charles Lawson, Anna Alexieff, and Victor Verdier, large, so well grown, and so profusely covered with flowers, that we do not think they could be surpassed. Together with these were fine examples of Elie Morel, John Hopper, Horace Vernet, Dr. Andry, Madame Victor Verdier, and Céline Forestier.

Class 2 was for six Roses in pots. The first prize was taken by Messrs. Veitch, who had, among others, beautiful specimens of Charles Lawson, Victor Verdier, and Princess Mary of Cambridge. These, like all the other Roses exhibited, were remarkable for their freshness, so great an attraction in every flower, and especially so in the Rose. A fourth prize was awarded to Mr. Rowe, gardener to Mrs. Lewis, Roehampton.

Class 3 was for three Roses in pots. Here Mr. Ellis, gardener to J. Galsworthy, Esq., Coombe Warren, Kingston, was first with three exceedingly well-grown specimens. Mr. Baxter, gardener to C. Kieser, Esq., Broxbourne, was a good second: and Mr. James, gardener to W. F. Watson, Esq., Isleworth, third.

For cut blooms Messrs. Paul & Son were first with a box of Gloire de Dijon, very fine, besides others of mixed varieties; Mr. Rowe, gardener to Mrs. Lewis, being second.

Of Azaleas there was also a fine display, and many of them were all that could be desired as regards growth and flowering. Messrs. Lane, of Great Berkhampstead, were first with large plants in excellent bloom; Crispiflora rosea, Magnificent, and Vicomte de Forceville being especially good. Mr. Hill, gardener to H. Taylor, Esq., Avenue Road, Regent's Park, was second with smaller plants, but beautifully grown and flowered. Iveryana, Smithii, Reine des Blanches, and Criterion were very fine, and the others good. Mr. Turner, of Slough, was third with half a dozen of his round-headed dwarf standards in great beauty. For threes, the first prize was withheld, the second went to Mr. J. Herrington, gardener to J. Price, Esq., Clapham Park; and equal third prizes were awarded to Mr. J. Wheeler, gardener to Sir F. H. Goldsmid, Bart., Regent's Park; and Mr. C. Baldwin, gardener to R. Drew, Esq., Streatham. The next class was for the same number of plants shown by an exhibitor who had never before taken the Society's prize for Azaleas. Mr. Hill, gardener to H. Taylor, Esq., was first with excellent specimens, from 3 to 3½ feet high, of Roi Leopold, Criterion, and a white variety. Mr. James was second with very well-bloomed plants, and Mr. J. Herrington third with tall pyramidal plants.

Of Auriculas there was a fair show. Mr. Turner, of Slough, was first for twelve, and Mr. James second. For six the Rev. H. H. Dombrain was first, and Mr. James second. For Alpines Mr. Turner was first, and Mr. James second.

Of herbaceous Calceolarias two excellent sets of six were sent by Mr. James, and Messrs. Dobson, of Isleworth. These Calceolarias are now so generally raised from seed that it is useless to particularise varieties; suffice it, then, to state that both collections, besides being well grown and flowered, had been raised from good strains.

Prizes were offered for six exotic Orchids. For these Mr. Denning, gardener to Lord Londesborough, Grimston Park, Tadcaster, was first with a fine example of the beautiful Phalænopsis Lüddemanniana, with nine flowers; Odontoglossum luteo-purpureum, with two fine spikes; Cypripedium Stonei; and excellent specimens of Odontoglossum nævium, Aërides Veitchii, and Cattleya Mossiæ. Mr. Bull, of Chelsea, who was second, had a pot of Cypripedium Lowii with seventeen flowers, and good specimens of Cypripedium barbatum, Odontoglossum cordatum, &c. Mr. Wheeler, gardener to Sir F. H. Goldsmid, Bart., was third.

In the miscellaneous class Mr. Denning took a prize with a collection, in which were Mesospinidium sanguineum, with three fine racemes of deep rose-coloured flowers; the large-flowered white and reddish-orange Dendrobium Jamesianum; D. Heyneanum, fine; Epidendrum Stamfordianum, &c. Messrs. Veitch had the first prize in the same class for a charming group of Roses in pots, along with which were several Japanese Maples. Of these, Acer polymorphum palmatifidum was conspicuous by its beautifully cut green leaves, and ornatum dissectum by those of a coppery bronze colour. Mr. C. Noble, of Sunningdale, Bagshot, had a second prize for a splendid collection of Clematis, conspicuous in which were Lady Londesborough, Miss Bateman, and Albert Victor, and between the baskets were interspersed plants of the pretty deep rose Spiræa palmata. Mr. Bull had a third prize for a collection of Palms and other fine-foliaged plants, Orchids, Primula japonica, and a variety of other subjects. Mr. Baxter, gardener to C. Kieser, Esq., sent a fine collection of Hippeastrums; Mr. Turner, of Slough and Alpine Auriculas, Tricolor Pelargoniums, and Primula japonica; and Mr. Ware, Tottenham, a large and very beautiful group of spring-flowering plants, including baskets of those very attractive Phloxes, verna and Nelsoni. Mr. Williams had a noble group of Yuccas, Dasylirions, variegated New Zealand Flax; a fine specimen of the lovely Filmy Fern, Todea superba; the new Hare's foot Fern, Davallia Tyermanii, and Rhododendron Auguste Van Geert, a fine vinous purplish rose. Messrs. Standish & Co., Ascot, sent a remarkably fine specimen of Eucharis amazonica, seedling Clematises, a nice basket of Struthiopteris japonica, and an Abies from the Altai Mountains, Siberia, of very dwarf habit, with the leaves glaucous beneath, and the young shoots brownish red for about three weeks when pushing, a plant which promises to be useful in spring gardening.

Mr. Needle, gardener to the Comte de Paris, Twickenham, again exhibited a charming little group of terrestrial Orchids. Mr. William Paul sent three boxes of cut blooms of Maréchal Niel Rose, which for size and richness of colour combined may have been equalled, but certainly have never been surpassed. From the same exhibitor came also several white-variegated white-flowered Pelargoniums, of which Waltham Bride has been frequently noticed. The others were Avalanche, Snow-wreath, and Virgin Queen, all with white flowers in good trusses, and the leaf-variegation pure white.

Mr. Hooper, Widcombe Hill, Bath, sent a stand of Turban Ranunculuses, also bedding and fancy Pansies; Mr. James a collection in pots, likewise cut blooms; and Mr. Bragg, of Slough, thirty-six fancies. A number of extra prizes were awarded.

Fruit Committee.—G. F. Wilson, Esq., F.R.S., in the chair. Messrs. Wright, The Nursery, Lee, Kent, sent three bunches of new Black Hamburgh Grapes of great merit, to which a cultural commendation was awarded. Mr. Tegg, gardener to J. Walter, Esq., Bearwood, sent three bunches of Black Hamburgh, and three of Buckland Sweetwater, to which a cultural commendation was awarded. Mr. M. Davis, gardener to P. Galloway, Esq., Roehampton Park, sent a dish of early Peaches. Mr. Tegg, the Gardens, Bearwood, sent a basket of very fine Figs—Brown Turkey and Violette de Bordeaux, both admirably grown, and which received a cultural commendation. Mr. H. Hopper, gardener to E. D. Lee, Esq., Hartwell House, Aylesbury, sent a dish of Dr. Hogg Strawberry, which elicited the admiration of the Committee for their great size and brilliant colour. A cultural commendation was awarded. Mr. D. Mackellar, gardener to C. Magniac, Esq., Colworth, sent a dish of Marguerite Strawberry equally fine of their kind, and received a cultural commendation. Mr. Stevens gardener to his Grace the Duke of Sutherland, Trentham, sent two dishes of Black Tartarian and one of Bigarreau Napoleon, both large, handsome, and well-flavoured. They received a cultural commendation. Robert Hudson, Esq., Clapham Common, sent a brace of Cucumbers which the Committee considered rather coarse. Mr. Dancer, of Little Sutton, sent a bundle of Conover's Colossal Asparagus, a fine, large, American variety, which received a first-class certificate.

The subjects exhibited at this meeting were generally of a very high order, as is evidenced by the unusual number of cultural certificates that were awarded.

Floral Committee.—E. Rosher, Esq., in the chair. Messrs. Veitch sent a group of Orchids, among which were fine specimens of Oncidium hastatum and Odontoglossum Alexandræ; and for it a cultural commendation was given. A Pentstemon (?) from the Rocky Mountains with purplish rose flowers received a first-class certificate; and there was also a graceful Leptopteris, though whether from its natural character, or not being covered with a bell-glass, it did not exhibit the beautiful filmy appearance of L. superba. Mr. Williams, Holloway, had a first-class certificate for Encephalartos cycadifolia, a very handsome species; he also sent Pandanus aurea with pale yellow leaves, and a very compact plant of Agave filifera. Mr. Linden, of Brussels, had a first-class certificate for Odontoglossum brevifolium with large yellowish brown flowers with a yellow lip. Mr. Linden also exhibited O. nevadense with dark petals and

sepals edged with yellow, and a white lip crisped and slightly fimbriated.

Mr. Croucher, gardener to J. Peacock, Esq., Sudbury House, Hammersmith, received a first-class certificate for Echinocactus Mirhelii, a singular-looking eight-ribbed globular Cactus, marked with white on the sides of the ribs. Messrs. Rollisson, Tooting, had a similar award for Dracæna lentiginosa, a very distinct species, with narrow leaves 3 feet long, and of a brownish olive colour. They also sent a collection of pretty erect-flowering Gloxinias, of which Richard Thornton and Fanny Wilder were singularly marked, and some of the others were high-coloured. Mr. Ware, Tottenham, exhibited a group of Funkias, of which ovata aurea was very effective; Mr. Pilcher, Station Nursery, Horsham, Coleus Lady Burrell, reddish brown, broadly tipped with yellow; Mr. Hooper, Bath, Pansies, of which the following had first-class certificates—viz., Crimson Beauty (fancy), reddish brown with a black blotch; Mrs. Eyles, white ground, broad velvety purple belt; and Prince of Wales, yellow ground, maroon belt. Mr. Turner, Slough, had a first-class certificate for Alpine Auricula Colonel Scott, noticed in our report of the last meeting, also for Mercury, very like it in colour.

Mr. Baines, gardener to H. Micholls, Esq., Southgate, had a cultural commendation for two marvellous specimens of Sarracenia Drummondi alba and S. flava standing 4½ to 5 feet high from the ground; Mr. Green, gardener to W. Wilson Saunders, Esq., received a similar award for a very interesting group of plants; and J. Russell, Esq., for a collection of neat Orchids.

From Messrs. E. G. Henderson & Son, Wellington Nurseries, St. John's Wood, came a group of Tricolor and Bronze Pelargoniums, of which Bronze Queen was broadly zoned with deep bronze; also the beautiful Fern-like Thalictrum adiantoides, Pelargonium Schottii, deep purplish crimson with an almost black blotch on each petal—a mere curiosity at present, but which may give rise to new colours; and Bouvardia longiflora flammea, with fine heads of salmon-rose flowers—this had a first-class certificate. A similar award was made to Messrs. Ivery and Son, of Dorking for Azalea Fanny Ivery, with large salmon-red flowers, blotched with purple in the upper petals. Mr. W. Paul, Waltham Cross, sent white variegated Pelargoniums Imogene, white with a pink eye, and Lord Bacon, salmon, shading off to pale rose, a very pleasing variety. Mr. Bull sent two Dracænas; Mr. Blackley, Leyton, Tree Carnation La Belle, white, stated to be very free-flowering, but shaken in travelling; and Mr. Porter, gardener to Mrs. Benham, Isleworth, Giant Polyanthuses. From Messrs. Barr & Sugden again came a collection of Narcissus; and Mr. Stevens, gardener to the Duke of Sutherland, Trentham, sent a variety of Odontoglossum Pescatorei, sparingly spotted with purple. Mr. Denning, gardener to Lord Londesborough, exhibited cut specimens of a similar variety.

LARGE ELM IN RYARSH CHURCHYARD, KENT.

Some time ago, in passing through the churchyard of Ryarsh, half-dozen miles to the west of Maidstone, I noticed an aged Elm of unusual size growing against the churchyard wall. It had probably been a pollard a hundred years ago, as a number of heads seemed to start from a wide-spread head that might have been several times headed-down before. The tree had a bole from 8 to 10 feet high, the girth of which, taken at the smallest part between the root-claws and the swelling whence the branches proceeded, was 28 feet; and in walking round a casual observer would have pronounced it sound, so healthy were both the bark and the foliage. Such, however, was not the case; for although there was no side opening, and only one place showing a little decay, yet in the centre (as could be seen by getting upon the wall) there was a hollow sufficient to hold three or four people. No doubt the treatment to which the tree had been subjected 150 years ago, or before that time, had tended to make it so, but its healthy vigour seemed to warrant a belief that it would outlive many generations of men. There is little doubt that the internal decay will go on faster than the formation of new wood on the outside, and a period must come when some part of the fabric will give way, but at present that day seems far distant. This noble tree exhibits in its foliage all the vigour of youth, and the limbs—two or three of them competing as leaders—seem quite sound, and likely to outlive many younger trees.

The character of the soil in which this Elm is growing is sandy, with a subsoil varying between a white silicious sand and a yellow gravel. The surface soil is, however, not shallow, and it is possible the Elm may have benefited more from the disturbance of the churchyard than it suffered; for Elm roots are blamed for appropriating to themselves all that is good within their reach, and the rapidity with which they occupy a heap of compost lying within their range is known to all who have had experience of them. Here was a very fine example of a tree growing where everything has an air of rural simplicity—in a retired country churchyard.—J. Robson.

ENTOMOLOGICAL SOCIETY'S MEETING.

The April meeting was held at Burlington House on the 1st, when, from the fact of its occurrence on the holiday of Easter and the wet weather, the attendance of members was but small. The sudden death of one of the active members of the Society, Mr. T. Horne (whose entomological experiences in India had so often contributed to the information of the Society), and the recent decease of Professor Pictet de la Rive, of Geneva, were announced. The latter author had published excellent monographs on the Perlidæ, Phryganeidæ, and other Neuropterous insects, but his attention had more recently been devoted to palæontology, upon which science he had published some important works.

Professor Westwood exhibited specimens of a wood-like, many-celled gall, found at the roots of young Oak trees, with a number of the insects reared therefrom, which Mr. A. Müller recognised as Cynips Quercûs-radicis. The Professor also exhibited a number of highly magnified drawings of the minute organs of various species of Cynipidæ, amongst which the structure of the outer sheath of the ovipositor was shown to be very variable, and to afford specific characters hitherto unnoticed. He also exhibited some highly magnified drawings of the head, antennæ, and terminal parts of the body of various species of fleas, some of which were of a very interesting character; also drawings of a species of mussel-shaped Coccus, which is often found on the rind of Oranges, and of the very curious parasite by which it is attacked, belonging to the genus which he had characterised under the name of Coccophagus.

Mr. Butler read descriptions of eight additional species of South American moths, belonging to the group Pericopides. Mr. MacLachlan read a memoir on the structure of the external male organs of various individuals of the genus Acentropus, which induced him to adopt the opinion that there was only one variable species in that genus. Mr. Albert Müller exhibited specimens of the small beetle Anaspis maculata, which he had reared from an excrescence on a Birch twig, from a larva a quarter of an inch long, the perfect insect having made its appearance on the 7th of March. M. Perris had reared the same insect in France from the Grape Vine.

THE ROYAL HORTICULTURAL SOCIETY'S BIRMINGHAM PRIZES.

It would be most ungracious in exhibitors to complain of the conditions which are attached to the prizes so generously offered by Messrs. Carter, Sutton, Hurst, and others at the Royal Show at Birmingham; but I would with the utmost courtesy suggest to those in authority that to insist upon a special variety when there is not time to produce it tends directly to lessen vastly the number of competitors—*e.g.*, in Class 160 one of the six varieties of Peas must be Macleau's Best of All. Many exhibitors besides myself grow it, for it is really good, and, like myself, may have reserved it for a later crop, and will therefore be excluded from competition, because not informed till the middle of April that it is essential. Nor is this all. So many classes being "limited," and all but the owners of vast gardens being precluded from competing for Messrs. Carter's grand cup by Melons and certain kinds of vegetables, it becomes a question, Is it worth while to go to Birmingham at all?

Whilst on "suggestions" I may add, it should surely be defined what are and what are not vegetables—for instance, in Class 159, may Rhubarb, Cucumbers, Lettuces, and Melons be exhibited? for in some places these are and in others they are not considered vegetables. What are they to be at Birmingham?—C. C. E.

FUMIGATING.

To "H. G.'s" very convenient mode of delivering a single plant from the troublesome aphis, so well illustrated at page 326, allow me to add the following plan which I have found to answer. If the infested plant is small and short, take three or four Laurel leaves, beat them all over with a hammer so as to thoroughly bruise them, then place them round or under the plant, and cover as shown in the illustration. A bell-glass does best. Let all remain closed for a few hours, and the aphides will then be found dead, each hanging by its proboscis only. If this process is repeated within a day or two to make sure, the plant will be perfectly freed, and in some cases is not again attacked. This way of killing aphides may

be acceptable to those who dislike tobacco smoke, all danger arising from an overdose of it to a very tender plant is avoided, and the Laurel is so generally grown that it must be almost everywhere at hand for the purpose.—W. Mitten.

PINCHING THE LEAVES OF FRUIT TREES.

The pruning of fruit trees as at present practised, consisting in cutting off yearly from a third to a fourth part of the growing branches, and then shortening all the resulting young shoots, is daily attacked by a new school, who would substitute for it a method of growing fruit trees from which great mutilations, and the suppression of the branches of the framework, are scrupulously avoided. Those who depend on the old mode of pruning are obliged to confess that the greater part of gardeners do it badly; that in their unskilful hands it is very dangerous, and indeed gardeners ought to be excused, for the rules of this pruning are very arbitrary and uncertain.

In the new system the grower is to take care that the tree be not subjected to greater suppressions than are absolutely necessary, and also that only such restrictions be made as are requisite for maintaining the proper strength of the sap, the uniformity of the framework, and to induce the disposition to fruit herbaceous shoots. The experiments of the elder M. Grin, of Chartres, prove that the pinching of herbaceous shoots—the mere nipping of the leaves—if done in proper time, is quite enough to ensure the attainment of this end. M. Grin's system is as follows:—

He prunes in November, and by this means he concentrates in the buds left after the pruning all the sap elaborated during the winter, and avoids gumming and blistering.

In April, as the leaves expand, he cuts over at half their length two leaves at the base of the premature lateral (see A in the accompanying figure), leaving untouched the first and broader leaf B. The premature lateral has this characteristic, that the first leaf it produces is long and broad, and the next pair are small and stipule-like. It is these two which ought to be cut over at half their length at A. This simple operation causes the development of two buds at the base of each shoot.

When the shoot has developed a second pair of leaves it is in the same way necessary to cut these two leaves at half their length from the base, at B, the large leaf always remaining untouched. The above two simple leaf-nippings suffice to arrest the development of the premature shoot, to establish two buds at the base, and to impart a fruiting disposition to those buds formed at the second pair of leaves.

If, on some very vigorous trees, a branch is disposed to grow too long, it will be necessary to restrict it by cutting the extremity in order to create a fruiting tendency. It is very seldom that there is any necessity to have recourse to more than one nipping.

This system is applicable to all kinds of fruit trees, to Apples and Pears as well as to stone fruits. M. Grin has replied as follows to objections made by some of the Committee of the Paris Horticultural Society.

"The simple nipping of the extremities of the leaves has enabled me to arrest the flow of the sap, to moderate growth, to maintain the balance of the tree, and to cause fruitfulness.

"The nipping of the leaves, as practised by myself, has always resulted in the development of buds at the base of the shoot, and having them as close as possible to the principal branches of the tree, even in the case of over-luxuriant shoots."

There is no occasion for me to insist upon the simplicity and advantages of this system of managing fruit trees, which saves tying or nailing, doubles the amount of fruit produced on the wall, and prevents gumming and blistering.—(*De La Roy in Revue Horticole.*)

ROSES.

Nothing could be finer than the first bloom here last year, but orange fungus prevailed, and great mischief was done to the health of the trees by the destruction of the functions of the leaves. I regret to say, that though I put more than six hundred bushels of lime on my Rose ground and other plots with a view to destroy its spores, I still see a great amount of orange fungus on the new foliage.

I have cut back my Roses—my first cutting was just after Christmas—and I have removed all foliage where I can see fungus, heading-back the twig to a dormant eye. I advise this to be done, for orange fungus is a quick spreader, affecting the under side of the foliage, and greatly hindering a fine autumn bloom. The wood of Roses, from this cause and long-continued rain chilling the roots, has suffered much. The bark looks yellow (chlorosis—it would be better termed jaunosis, as chlorosis means, properly, green), and the pith, which should be white, looks salmonish. The more of such wood removed the better for the plant. I have cut down many of my bush plants to the stump. I cut down some last year to the stump, and they are now among my healthiest and best plants.

Judge of the health of your Rose trees by the colour of the bark and pith; the former should be a healthy green, and the latter a clear white. As regards buds that have been frosted, if they feel soft pull them off; and if the two side buds look fresh let them remain, and when you see which is the better pull off the other.

It is so cold and exposed here that I have rarely any white fungus. Orange fungus affects the stalks and under sides of the leaves, and white fungus the stalks and the upper sides of the leaves. I am determined to give no quarter to orange fungus. If necessary I will cut down to the ground every plant.

I advise persons who have freshly planted Briar Roses to cut them very hard indeed the first year; for lack of this, and not mulching them, they are often ruined for ever.

With regard to Roses of late date, I consider that it takes two or three seasons before one can speak with certainty about them. I can give a high "testamur" to the following Roses on the Manetti stock:—Elie Morel, Felix Genero, Marie Rady, Alice Dureau, Perfection de Lyon, Madame Chirard, Edward Morren, Baroness Rothschild, *presque pleine*, its only fault, Countess of Oxford, and Marquise de Castellane. Under glass in my vinery on the brick flue, planted out in earth with a board to keep the earth up, I have three beautiful plants of Princess Christian. Its buds, wonderful sepals, foliage, and erect habit are first-rate. I do not know it out of doors, but I never saw a more perfect type of a pot plant. There is no need of triggers. The curt twigs are stiff as iron. In a few days all three plants will bloom; from the look of the buds I think it must be a good Rose. I dressed two of the plants with some stuff sent by Mr. W. Paul, and the plants soon went ahead of the other plant, which is a very good one. The stuff looked worthless, but it is evidently very powerful. I have two nice wall plants of Rêve d'Or, which is distinct in colour and form. The blooms, golden with a coppery centre, were sent to me, and I thought them choice. After I have bloomed the plants I will report. I am more and more in love with Pradel's "darling." The Maréchal is good on the

Manetti, on Gloire de Dijon, and on the Briar. I thank M. Pradel from my heart.—W. F. Radclyffe.

NEW BOOKS.

The Fairfield Orchids: A Descriptive Catalogue of the Species and Varieties Grown by James Brooke & Co., *Fairfield Nurseries, Manchester.* London: Bradbury & Evans.

This is not merely what it professes to be—a descriptive catalogue of Orchids, but a very complete treatise on that popular family of plants. Although his name does not appear on the title-page, we believe that any merit the work possesses is due to Mr. Leo Grindon, who has in this instance produced a work on Orchids so popularly and so practically written that it cannot fail to be a great boon to amateurs and cultivators. The descriptive catalogue is a very full one, and is so detailed that one has no difficulty in identifying the different species from one another. The only regret we have is that the generic characters are not given. With these supplied the book would have been still more useful, and we hope that Mr. Grindon will not omit these in the next edition of the work. If these be added we shall then have what is a great desideratum to Orchid amateurs—a manual by which the genera and species may be identified.

Small Farms: How they may be Made to Answer by Means of Fruit-Growing. By the Rev. William Lea, M.A., *Vicar of St. Peter's, Droitwich, and Hon. Canon of Worcester.* London: Journal of Horticulture Office.

The papers which appeared in the pages of this Journal a short time ago have been reprinted and formed into a volume, of which the above is the title. The mere fact of the existence of this volume is evidence of the high appreciation we have formed of Mr. Lea's papers; and as we have reason to know that they have created in all quarters an interest in the importance of small holdings, we feel assured that the republication of them will be attended with a highly beneficial effect.

BASKET PLANTS FOR THE STOVE.—No. 3.

COLUMNEA.

The plants I here bring before the notice of your readers are too frequently condemned by both gardeners and amateurs as ugly and useless; but I am fully convinced that in the majority of cases this arises from their having been badly grown and not from any fault of the plants themselves. As pot plants Columneas are not showy, and, moreover, under such treatment are apt to become infested with a rusty cankerous disease which disfigures them very much. The usual method adopted for their culture is keeping them in pots, but it fails to afford any pleasurable return. To remedy this, and to induce these plants to display their beauties to the greatest advantage, I say grow them in baskets, potting, or basketing them rather, in a similar mixture of soil to that previously recommended for Hoyas, and hanging them up in the company of the Æschynanthus; they will soon produce good shoots and blooms. The treatment may be the same as for the last-named genus, but with one exception, and that is the syringing; for as these plants have woolly stems and leaves, I have found from experience they are better without it, or at any rate they should be only occasionally sprinkled overhead, and that very lightly.

Columnea is a genus of Gesneraceæ, but the species belonging to it are not furnished with tubers of any kind. As far as I am aware they are confined to South America. The flowers, which are produced on slender axillary peduncles, have a five-parted calyx, with a long tubular corolla and a two-lipped limb. These are freely produced, and not only are the individual blooms long-lived, but the plants flower in long succession.

When Columneas are grown as above recommended, the following kinds will be found to possess great beauty and will well repay a little extra attention.

C. aurantiaca.—A somewhat strong-growing species, producing large flowers of a rich deep orange red. Native of New Grenada.

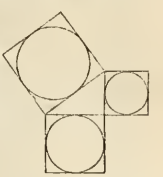
C. erythrophæa.—This plant is magnificent when grown so as to form a good specimen. The leaves are lanceolate, oblique at the base, but with an acuminate apex. The flowers are large, with a broad spreading limb, and rich brilliant red in colour. In addition to the corolla, the calyx, which is very large, is also blotched with deep red within. It is a native of Mexico.

C. scandens.—A smaller-growing plant than the last-named. The foliage is somewhat ovate, but inclining to taper to a point, clothed with soft hairs, and of a uniform deep green. The flowers are of a rich red and slightly hairy. It requires rather more shade than the other kinds.

C. Schiedtiana.—This is at once singular, distinct, and extremely beautiful. Leaves oblong-lanceolate, and furnished with close soft hairs. Flowers upwards of 2 inches long; the ground colour is yellow, over which are an immense quantity of streaks and spots of chocolate brown. Native of Mexico.—Expero Crede.

THE PROPORTIONS OF PIPES.

I gave your Journal of the 18th ult. to my second boy, who professes to be fond of Euclid and mathematical problems, to puzzle over the article on the proportions of pipes; and after a few minutes he said he did not see that you want the scale at all, for if you square the diameter of one pipe, and add that to the square of the diameter of the other pipe, then the square root of the sum is the diameter of the pipe that will convey the water of the two. Thus the square of 5=25 being added to the square of 4½=20.25, together equal 45.25, the square root of which is 6.72. "Just the same," he said, "as the 47th problem of the first book of Euclid, the square of the base and perpendicular are equal to the square of the hypothenuse; or," he said, "you may show it this way: Draw a square equal to the base, and another equal to the perpendicular of a right-angled triangle, and another equal to the hypothenuse, and strike a circle in each, when the largest will be the equivalent of the two smallest, or *vice versâ*."



—Melampus.

[The scale is intended not only to save time, but for those who know nothing about squaring diameters, square roots, or hypothenuses.—Eds.]

VEGETABLE AND FRUIT GROWING.

(*Concluded from page* 343.)

When these grounds change hands, which they seldom do, except those on the smaller scale, valuers are employed by the outgoing and incoming tenants, who are specially acquainted with the business, and are generally market gardeners themselves, and in some cases the payment from the one to the other has been as high as £100 an acre. I have not thought it necessary to enumerate the products which are naturally in season at different periods of the season, because there are so many artificial appliances in use, and supplies come from so many distant places, that our markets are seldom devoid of anything throughout the year.

Horse-and-cart distance at one time embraced the area from which we drew our supplies, and this has still some advantage in connection with the supply of manure. But if sewage is carried into more distant districts, less highly rented and burdened with expensive labour, this advantage will be lessened. Sanitary precautions will not allow occupiers within proximity of towns and populous districts to avail themselves of it, but last year I valued the owner into a farm of 160 acres, eight miles from the Bank, which he has sewaged, and let at £10 an acre to two native tenants—the former rent having been 52*s.* 6*d.*; but as the experiment is not yet well begun, I cannot quote or even predict results. Steam-ploughing may also come into play, which it has not as yet done, as a large stud of horses must be kept in proportion to the acreage, for alternate cartage and working on the land. I have not gone into the management of orchards in the cider and perry counties, nor into the numerous and productive fruit gardens of Kent, because they have already been fully described in the county and in local reports, and except that there are innumerable inferior kinds of trees and plants occupying space and soil entitled to better sorts, I cannot suggest any improvements in their management.

I was asked to bring this subject forward, because for the last ten years I have had a great deal to do in letting market-garden ground, and I consented to do so, more with the view of eliciting information from, than conveying suggestions or directions to, the occupiers of these lands, who, though not much heard of in public, are entitled to the highest consideration, for they pay handsome rents, expend immense sums in labour, have unceasing labours and anxieties—indeed they must have eyes that

never wink, and wings that never are weary, and for all this they have no compensation but the precarious chance of profit. No shutting-up shop with them between seed-time and harvest, with tours of pleasure or instruction between; no very bracing climate to live in; no field or cover shooting; no hunting, or other country sport; very little sympathy between the employers and employed, and none of those patriarchal associations that help to make a country life pleasant, even when it is not very profitable.

In the discussion which followed, Mr. J. Bradshaw, Knowle, Guildford, said three weeks ago he was in the neighbourhood of Sandbach, which was contiguous to the potteries, and he found that farmers were there able to sell their straw at £5 a-ton; crops of Cabbages and other vegetables were sent to the potteries and the iron districts, and if that had not been allowed the owners of the soil and the tenant-farmers would not have reaped the advantages they were doing (hear, hear). He maintained that every district must be farmed according to the locality, the soil, and the demand which there was for a particular produce, and that it was impossible to lay down any hard-and-fast rule. He was the originator of a tariff for the conveyance by railway of manure from London—good night-soil, mixed up with a certain proportion of street sweepings to enable it to be transported. In his neighbourhood they could not get that down to the farm under £2 10s. per ton, thirty-eight miles, cost and canal carriage included; whereas similar manure could be sent to Scotland for 7s., cost and freight per barge, after landing Potatoes in the Thames; and that was a kind of manure which possessed those constituents which were required for the proper cultivation of vegetables in the vicinity of London. As regarded fruit-growing, he might remark that he resided on a loamy soil, about nine miles to the east of Guildford, and that he had for some years been very successful in growing Normandy and Brittany Pears. He had produced a description of Pears which were very nearly equal to the Pears of Normandy, which, he might add, could not be produced of the same flavour in the neighbouring locality of Worplesden. On the other hand, they produced at Worplesden certain Pears with a better flavour than we could obtain. He mentioned that merely as showing that the soil and climate of a district must be considered if a man wished to farm profitably. He would allude for a moment to the Potato culture of Lancashire. He could remember a period, fifty or sixty years ago, he being a child at that time, when members of his family used to send every year a present to Surrey, of—what did they think? An early growth of Potatoes; and at that time that was one of the most acceptable presents that could be received in London or the county of Surrey. He believed that if farmers who were contiguous to London would only consult the character of the soil which they had to cultivate, they might compete successfully with some of the continental growers of fruit, and obtain very good returns for the outlay of capital and labour; whereas, on the other hand, if they attempted to produce what the soil was not adapted for, the result could not be otherwise than unfortunate.

The Chairman said he quite agreed with Mr. Scott, that they must look carefully to congeniality of soil. He well recollected hearing Mr. Hope state in that room, while speaking of the growth of Celery with the assistance of sewage manure, that something like £50 per acre could be obtained in that way. The crops of Onions which he had seen grown at Biggleswade, in Bedfordshire, quite confirm Mr. Scott's opinion, that peculiar soils were required for particular plants. They all knew that the largest, finest, and best crops of Onions in the world were obtained in that locality. Again, he would remark that what he was saying was confined entirely to farming, and that he was not speaking of gardening. In the district of Coggeshall, in Essex, they would find a few fields entirely covered with Parsley and others with Cucumbers, and if they went out shooting in the autumn they might often see an old hare sitting under a yellow Cucumber. He had seen a small district where Mignonette and Sweet Peas were grown together. That might seem a funny crop for a farm to produce, but he had known cases in which it would produce £100 per acre, and that showed the importance of taking care to produce the proper crop on peculiar soils.

Mr. Marsh, Sandwich, said: Although he had seen something of fruit-growing in Kent, he was not himself a fruit-grower, at all events only to the extent of half-an-acre of Apples or something of that. Kent was, as they all knew, famous for its Cherry orchards. In looking over an old chronological Kentish work some years ago, he found it stated that in 1540, at Teynham, near Sittingbourne, a Cherry orchard of 32 acres produced in one year £1000. It did not appear whether that sum included the Cherries alone or the land as well, but in either case that was a very large amount to be paid 330 years ago. In his own neighbourhood, Sandwich, market gardening had lately progressed with great strides. They had sent large quantities of Broccoli and other vegetables to Birmingham and Manchester, and the returns had sometimes been wonderful. As regarded Onions, he must say the return seemed very uncertain. For example, whereas last year Onions fetched 8s. or 9s. a-bushel, this year they were comparatively worthless. Gooseberries and Cherries were largely grown in his neighbourhood. Many acres of land were employed in that way, and when that was the case the market gardener was knocked over, as it were, in comparison. It was not uncommon for such a person to pay £4 or £5 an acre for his land, and besides that to spend a very large amount on guano. A short time ago he asked a person in that position, who was a first-rate manager, how he made it pay, to which he replied, "Well, if I can get my Cabbages to market a few days earlier than my neighbours, although I may have used four or five, or even six hundredweight of guano per acre, the money is soon repaid."

Mr. M. Reynolds, Warden, Biggleswade, said he lived in a part of Bedfordshire where vegetable cultivation was very largely carried out; the parish of Sandy was the originator, as it might be termed, of market gardening. They had heard a good deal about certain soils being adapted for the growth of particular vegetables. The soil of the parish of Sandy was of a most varied description. A portion of it was a very fine alluvial soil; another, and a larger portion, was no doubt originally a very poor sand; the remainder, and perhaps by far the larger proportion, comprised some of the strongest land in Bedfordshire. Up to about twenty years ago this latter description of land was hardly thought of for gardening purposes, but having been well drained, he believed it was some of the most profitable land in Sandy at the present time. They had heard that evening of very high rents being paid by market gardeners. In his neighbourhood they knew nothing of £20 per acre, £15, or even £10. Some land at Biggleswade was let at £8 an acre, but that rent was confined to about 100 acres in the immediate neighbourhood of a railway station; and from his knowledge of the neighbourhood, he should say that the rents of land let for gardening varied from £3 to £6 an acre. As regarded the price of labour, he believed that the wages paid by gardeners in that district were not as great as many gentlemen appeared to suppose. He did not think that any gardener in the winter season paid more than 2*s.* a-day for labour. In the spring of the year and in busy times, gardeners paid 2*s.* 6*d.* a-day and gave their men two pints of beer each, and perhaps in very busy times they might pay as much as 3*s.* a-day; but he believed that with that exception 2*s.* 6*d.* a-day was the extreme amount that a market gardener's labourer obtained. They worked the usual number of hours; if they worked extra hours they were no doubt paid extra. As regarded crops, he remembered a period when Potatoes and Onions were the principal garden produce grown in his neighbourhood, but he did not think they were now able to compete with Cornwall and the Channel Islands for early Potatoes. The earliest Potatoes grown in his neighbourhood were Shaw Potatoes, and they did not come in sufficiently early.

Mr. Reynolds said the two crops that were grown in his neighbourhood most largely and apparently to the greatest advantage, were Turnip seed and Cucumbers. The great principle of market-gardening was high manuring. The quantity of manure that was put on the land would astonish many who did not live in a garden district. He had known as much as 60 tons per acre to be put on garden land; 100 bushels of soot per acre was a usual dressing. He thought the only way in which gardeners could protect themselves was by growing a variety of crops. Of late years there have been considerable failures in several of the garden crops grown by the smaller class of gardeners; but on the other hand, where the crops had been varied, and cultivation had been carried on upon a large scale, as was now the case in Bedfordshire, the result had generally been remunerative.—(*Journal of the Farmers' Club.*)

Simpson's Wortley Celery Collar.—This is made of brown paper, and one is to enclose each plant. Such excellent authorities as Mr. Rose, the Queen's head gardener at Frogmore; Mr. Speed, the Duke of Devonshire's gardener; and Mr. W. Thomson, of the Tweed Vineyard, anticipate that it will be very useful in preventing the soil penetrating and injuring the hearts of the plants during the operation of earthing them up.

Leptosyne gigantea (Kellogg).—In a recent number of the Proceedings of the California Academy of Sciences we note this new plant described, and we judge it is one well worthy of culture as an ornamental-leaf plant for the open ground. It is a plant of the Aster or Composite family. It is a perennial with a woody stem rising about 10 feet high. The growth is so rapid, Dr. Kellogg says, that the concentric annual growth is often half an inch thick. The branches thicken at the ends like clubs. The plant seems full-grown at 10 feet high. In blossom it is said to be surmounted with a broad canopy of golden flowers of great magnificence and beauty, giving off a honey-

comb fragrance perfectly delightful. It was discovered at Santa Barbara, about forty miles from the coast, by Mr. G. W. Harford, under Captain Forney, of the U.S. Coast Survey.—(*American Gardener's Monthly.*)

GREENHOUSE PLANTS.—No. 10.

Cyclamen persicum.—The genus Cyclamen consists of several species and many varieties of dwarf, neat-growing, tuberous-rooted plants, very useful for greenhouse or conservatory decoration. As furnishing cut flowers, also for table decoration, there are few plants which can vie with well-grown and well-flowered specimens of Cyclamen persicum. Two or three flowers set on the plant's own leaves, which are remarkable for beautiful variegation, are extremely useful for bouquets, and when placed with their stalks in water retain their beauty and freshness for many days. They are now extensively cultivated, and they will thrive in any light airy greenhouse.

Anyone desirous of cultivating them should purchase a packet of seed of a choice strain. From a large packet a hundred or more plants may be raised for the price that one good named variety would cost. Under ordinary treatment the seedlings will flower within twelve months of the time of sowing. Last April I sowed a half-crown packet of seed, and succeeded in flowering upwards of fifty plants consisting of nine very distinct varieties with finely marbled foliage. Some are in flower now, and will continue so for some time. I have been supplied with plants not nearly so good the first year as any of those raised from seed, and I therefore advise raising from seed in preference to purchasing plants. If named varieties are wanted, then, of course, we must purchase them; but some nine varieties in separate packets of seed can be obtained, and the varieties reproduce themselves truly from seed.

It is now late to sow the seed, but those who have not yet sown may still do so, and the plants will flower within the year. From the middle of March to the middle of April is the time I would advise for sowing the seed, always excepting when it is home-saved, and then I would sow it as soon as ripe.

Drain a pan well, cover the drainage about an inch deep with the roughest part of the following compost—viz., two parts light fibrous loam, one part leaf soil, one part sandy peat, and a sixth part of silver sand and small charcoal. Sift through a half-inch sieve, and fill to within a quarter of an inch of the rim with the sifted soil. Scatter the seeds evenly and thinly, and cover them with about a quarter of an inch of fine soil. Water gently, and place the pan in a hotbed of 70° to 75° and top heat of 65° to 70°, with a rise from sun heat to 80° or 85°. A Cucumber frame is as good a place as any. Keep the soil regularly moist, and when the seedlings appear place them near the glass. They should have slight shade from bright sun in the middle of the day. A gentle sprinkling overhead may be given every afternoon.

When the plants have one leaf and are showing the second, pot them off singly in 3-inch pots, lifting them carefully. Pot so that the corm may be covered about half an inch deep with soil. The same kind of soil as that used for sowing the seed will answer at this potting. Return the seedlings to the hotbed or another of like temperature, shading for a time from bright sun, and sprinkle overhead in the evening. Here they may remain with a moderate amount of air and an evenly regulated temperature, shading lightly when the sun's rays are very powerful, and keeping the plants near the glass to prevent their becoming drawn.

When the pots are becoming full of roots shift the plants into 4½ or 5-inch pots, and employ the compost already recommended, but chopped up and passed through a three-quarter-inch sieve. Good drainage is necessary at this and all other pottings. The plants may be returned to a hotbed, but instead I place them on shelves in a house, or on the front curbs or stages of low pits, where the temperature ranges at night from 55° to 60°. After potting set the plants for a time in a mild bottom heat, housing them, however, by the early part of October. In November they will be good plants, and some of them will need a shift, though I do not care for them in larger than 7-inch pots. Any of the most forward and best-grown plants may be shifted into pots of that size and be encouraged to make further growth, but those which have not filled the pots with roots should not be shifted. It is no disadvantage for the plants to be of different degrees of growth, as in this case they will afford a succession of bloom.

The plants are kept during the winter in a temperature of 55° at night, with air on all favourable occasions. The most important point in their winter management is to keep them near the glass, not to water at the roots before the soil becomes dry, and then to afford a thorough supply. Water should be given before the soil parts from the sides of the pots. The plants are benefited by a gentle sprinkling overhead morning and evening, except in very severe weather. A moist atmosphere is also good, but drip will soon ruin them.

By the middle of February the plants will be coming into flower. Any that are in pots less than 6 or 7 inches in diameter, and not showing flower-buds, but with good foliage, should be placed in pots of those sizes; all throwing up for bloom should be removed when the flowers are expanding to a house with a temperature of 45° to 50° at night or from fire heat, and they will continue in beauty for weeks. They should have a light airy position, and must be duly supplied with water. The plants not flowering, if continued in the warmer house, will flower later.

The flowering will be over in May. Remove the plants to a pit or cold frame, and give them water as required until the leaves turn yellow. I place mine in June in a cold frame, plunging the pots to the rim in coal ashes. After the middle of June I withdraw the lights, consequently it would answer just as well to plunge them in ashes out of doors after the middle of June. If I had cocoa-nut fibre refuse I would use it in preference to coal ashes, and cover the pots to the depth of from one-half to three-quarters of an inch. They are not watered after plunging.

This brings me to the time of starting the established plants—namely, the end of July, the beginning of August, or later, for after the plants have flowered, or whether they flower or not, they are kept under glass until the middle of June, and then plunged in frames or out of doors. I am opposed to drying-off the roots or corms. It impairs the vitality of the corm, and destroys the majority of the roots, which are as perennial as the corms. From the end of July they should be examined frequently to see when they begin to grow, and if the soil is dry at that time water is given when they begin to grow, which may be known by the corms putting out fresh leaves. Withdraw the pots from the plunging material, take the plants to the potting bench, turn them out of the pots, remove as much of the old soil as will come away freely without injuring the roots, and repot in the same size of pot. After repotting place the plants in a cold frame, keep them close and moist for a few days, and then admit air freely. Take care not to overwater, and sprinkle overhead every afternoon on closing the frame. By the middle of September they will be growing freely; the pots will be full of roots, and the plants may be shifted into 6 or 9-inch pots, or be flowered in those in which they were first potted; in either case they may be removed to a house with a temperature of 55° at night, placing them near the glass, and admitting air freely. A stove, or any house where there is a temperature of 55° at night, is suitable. Here they may remain until they flower, when they should be removed to a house with a temperature of 45° to 50°.

All the plants will not start into growth at one time, or if they do then we have only at different times to introduce them to heat; for instance, one batch in September, another in October, the last batch being removed from cold frames in November. In this way we secure early bloom as well as a succession of it. In the ordinary course of things we may calculate on Cyclamen flowers from November to May inclusive, if seedlings as well as old plants are grown. The plants will not thrive in a low temperature, especially when it is accompanied with a damp close atmosphere, and the soil is wet.

The varieties of Cyclamen persicum can be grown without being placed in a warm house in autumn and continued there until in the flowering state. Many cannot afford more heat than that of a greenhouse from which frost is excluded. In such Cyclamen persicum can be grown well, the treatment up to October not being different from that of plants placed in heat; afterwards the plants should be set on shelves near the glass, and kept only moderately supplied with water, giving none as long as the soil is moist, and when dry a thorough supply. The plants may, if necessary, be shifted into larger pots in October and February, for under cool treatment they will not flower until March or April.

Dried corms should be potted as early in autumn as possible—indeed, whenever received they should be potted, surrounding the corms with silver sand. Keep them in a cold frame until September, and at the end of that month it is desirable

to place them in a gentle hotbed; or they may be subjected to a course of warm treatment, in which they will do infinitely better than those in a greenhouse.

Dried corms for the most part start badly, and do not as a rule flower well the first year; but where seedlings can be raised and grown in a little heat and kept during the winter in a temperature of 45° at night, good plants may be obtained within twelve months from sowing.—G. ABBEY.

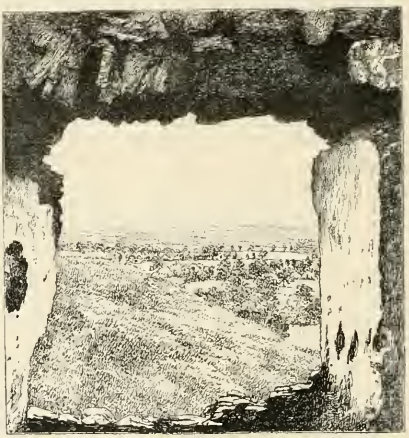
NOTES OF A TOUR IN IRELAND.—No. 2.

COOLAYNA, EDENDERRY, CO. KILDARE, THE RESIDENCE OF F. F. HAMILTON, ESQ.

Upon the receipt of the following letter from my friend, Mr. McDonald, of the Phœnix Park, Dublin—no mean critic in matters horticultural and general—my mind was made up to go to Coolayna, and so put my friend's glowing descriptions to the proof:—

"I would much like you to see Coolayna, where resides Frederick Hamilton, in whom you will find one of the highest examples of a country gentleman, and his wife is worthy of her husband. What happier state of life when industry produces such results? Mr. Hamilton is one of a family remarkable for energetic mind and cultivated taste, and at Coolayna he has produced one of the happiest and most successful pieces of amateur gardening that I have yet seen. I will not say anything about the flower garden; it will charm you in effect and detail as it did me. I beg your attention to the surroundings of the garden; walk over some of the fields near the house, and observe the results of draining and high cultivation. You will also find Mr. Hamilton an architect, and will see in his new house, and the transformation of the old, one of the best examples of economising space with freedom of connection, and in all a snugness, which is a useful study, and gives a charming idea of comfort.

"On your left you will pass a peculiar-looking green hill, with a romantic castle standing on its brow; if you have time go up and have a look over the country from the castle; you will see, I think, portions of thirteen counties, and one of the finest tracts of land in the United Kingdom. Observe the appearance of the farms round Carbery Hill, and note the effect of an estate well managed for three generations. I believe Lord Harberton's property in Kildare was under the management of the grandfather, the father, and now under the present C. W. Hamilton, of Hamwood."



View from Carbery Castle.

Having had the good fortune to meet Mr. F. F. Hamilton at Hamwood, the residence of his brother, Mr. C. W. Hamilton, I had the best of all guides on my visit to this truly remarkable spot. Proceeding from Maynooth to a station, the name of which I forget, some three miles lower down the Great Western line, we were met by Mr. Hamilton's car, which conveyed us to his home, a distance of something like nine miles.

The scenery from Maynooth is by no means of the liveliest, being mostly flat and uninteresting farming land, and skirting along a portion of the famous Bog of Allan, which occupies a vast portion of the centre of Ireland.

Nearing our goal, the superior appearance of the land and the pasturage is very marked and striking. To our left is Carbery Hill, a rather peculiar-looking grassy knoll, surmounted by the old castle of Carbery in ruins. The appearance of this great ruin against the distant horizon, amidst so much verdure and freshness, is very peculiar. Leaving our car we ascended the hill, trampling under our feet the richest of pasture in the world, where I astonished Mr. Hamilton by eating of the fresh Champignons, which were growing plentifully under our feet. Arrived at the top, the view through one of the windows of the ruin, represented in the accompanying engraving, was magnificent, stretching over one of the finest tracts of land that could be looked upon. It is a sort of central standpoint. Mr. Hamilton's practised eye pointed out to me portions of some thirteen or fourteen counties. I could admire the beauty and extent of the scenery, the fresh green fields, the pretty hedgerow timber, the quiet, cosy, comfortable farm-house, and the grey church steeples studded here and there, but the counties were to me all as one.

"There," pointing to the west, Mr. Hamilton said, "there is my humble dwelling," and there, certainly some two or three miles off, could I see in front of a neat little farmhouse a great blaze of scarlet; I could see, in fact, thus far off Mrs. Hamilton's famed flower garden.

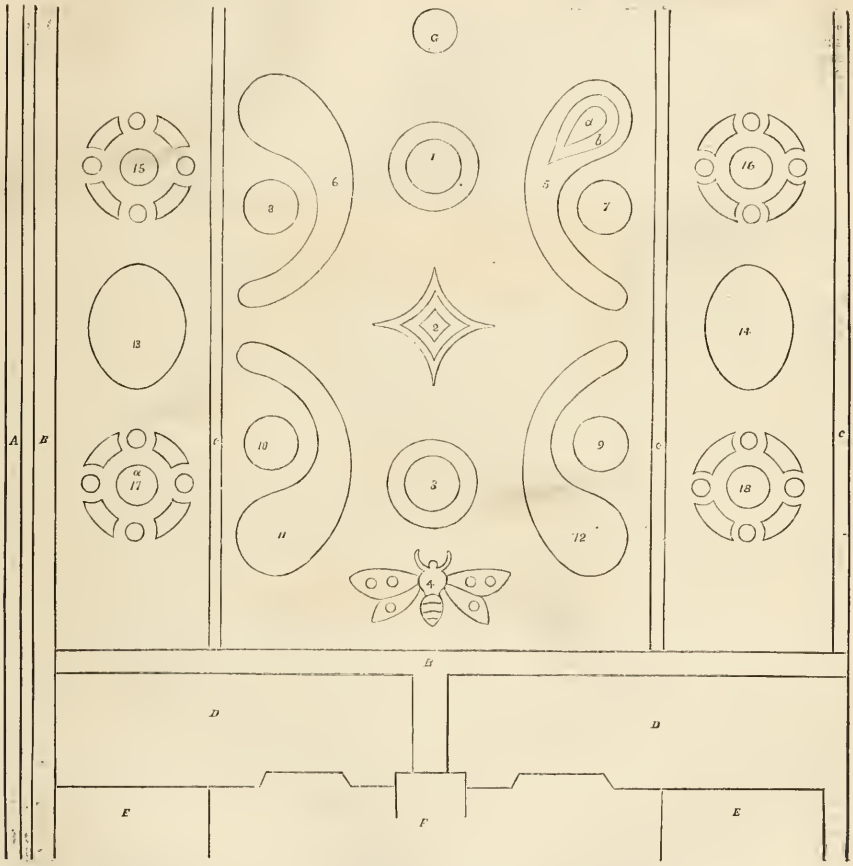
This Carbery Castle was formerly one of the great strongholds of Ireland. It was destroyed, according to my information, by Oliver Cromwell. Certain it is that it was at one time a place of considerable strength, as there are evidences of a regular siege having taken place—the trenches a little on one side not yet filled-in, and distinct traces of the redoubt. It was built about the year 1180. Early in the fourteenth century it was the seat of the Berningham family, one of whom, in 1541, was created Baron Carbery. The castle next passed to the family of Colley, or Cowley, one of whom brought it by marriage to the Wellesleys, and in 1747 the heiress of the same family married Arthur Pomeroy, afterwards created Viscount Harberton, ancestor of the present proprietor.

Descending the hill, I was very shortly within the gates of Coolayna. There is nothing very remarkable or striking in the outward appearance of the place. The house is, indeed, a very plain example of an Irish tenant-farmer's residence—unpretending, but substantial. Coolayna is an Irish farm, and Mr. Hamilton is an Irish tenant farmer, a noble example of a thorough country gentleman, a man of highly-cultivated taste and practical knowledge. One can hardly understand why he should have elected to fix his abode so far away in such an outlying sort of place as this, and the marvel is increased on being introduced to the head gardener, Mrs. Hamilton. [Our reporter's rhapsody we dare not insert.—EDS.] Mrs. Hamilton was busy making Pelargonium cuttings. Here is a new employment, a new diversion for ladies; instead of the croquet lawn and the never-ending crochet, let young ladies turn their attention to the pleasant art of gardening. Let them learn a lesson from Mrs. Hamilton.

Here is a flower garden, as shown, which can vie with some of the best in the land, and which, for arrangement, effect, and good cultivation, would put to shame many very pretentious places and clever professional gardeners, and all is the work of this lady, her sole assistants being a common Irish labourer to perform the work of digging, wheeling, and carrying, and Mr. Hamilton's occasional help in planting. I had almost forgotten to add, that if the visitor spend a day at Coolayna, if it is during the "planting-out" season, he has to lend a helping hand and do his part. If it is making cuttings, "Here is a knife, please assist." What pleasant garden parties must these be! Directed by such a presiding genius, who could refuse?

Referring to the plan, F is the house, a plain building, to which considerable additions were being made; at each end, E, E, is annexed a conservatory, small, but rather pleasing to look upon; D, D, grass plots; A, ribbon border—Ceras-

tium, Iresine, and Pelargoniums; B, walks; c, c, terrace slopes; and a, large characteristic Yew tree. The figures refer to the planting of the beds. No. 1, Scarlet Pelargonium Vivid for the centre, with an edging of the sweet-scented Fern-leaved Pelargonium. 2, Iresine Herbstii for centre, Golden Feather, bordering of blue tile; this was very effective. 4, Butterfly bed, extremely well suited for the position, and very effective; the horns of blue tile, the wings Variegated Alyssum divided with Perilla, the spots on the wings Purple King Verbena, Gazania splendens, and Scarlet Pelargoniums, with a bordering of the sweet-scented Fern-leaved Pelargonium; the body was striped with Iresine and Golden Feather, and the head of Lady Plymouth and Scarlet Pelargoniums. 5, Border of blue tile, *a*, yellow Calceolaria, *b*, Perilla, the other parts Scarlet Pelargoniums, and Lady Plymouth Pelargonium next the blue tile. 6, The same as No. 5. 7 and 8, Blue Bonnet Verbena, with Cloth of Gold Pelargonium for border. 9 and 10, Purple King Verbena, with Golden Chain border. 11 and 12, Centre Scarlet Pelargoniums, bordered with Iresine, Pelargonium Flower of the Day, and Blue tile. 13 and 14, Pelargonium



Flower Garden at Coolayna.

Stella in the centre, Cineraria maritima, blue tile. 15, 16, 17, and 18, Pelargonium Amy Hogg, very telling; William Underwood, Cybister, and Waltham Seedling. The whole presented a really charming picture.

The introduction of the blue tile as a bordering against the green grass was a very happy hit; it is used in place of the Lobelia, which has been found unsuitable in the damp climate of Kildare. The materials used were chiefly the more common plants. The arrangement was, however, excellent. I am afraid to say how many plants were used.

In the rear of the house I observed many thousands of cuttings put in, and in a capital manner—namely, in 2 inches of prepared soil on a dry gravel walk, where they root freely, and are then housed for the winter. Mrs. Hamilton informed me she put in the cuttings at the rate of a thousand a-day! Take note of this, young men. In the spring the Pelargoniums are all planted out in prepared soil in cold frames, to become established before planting out in the open beds—not a bad plan by any means.

The glass structures call for no special remark, being chiefly used for the bedding plants. A large span-roofed vinery was in the course of erection for the growth of Grapes for the Dublin market, and, as an entrance to the house, a long corridor fernery had been nearly completed.

In the kitchen garden the same skill and spirit were brought to bear, and all looked extremely well.

It is worthy of remark, that even in Kildare, a proclaimed county at the time of my visit, during the whole of the time alterations were being made at Coolayna not a lock or fastening was on the doors or windows of the house, not a thing went wrong, and not the slightest fear was felt of any violence, thus showing the goodly state of feeling towards Mr. Hamilton, and the state of confidence existing.—B.

WORK FOR THE WEEK.

KITCHEN GARDEN.

The continuance of cold wet weather may well excite apprehensions for the safety of several important crops in the vegetable garden. Ascertain as soon as possible the extent of the failure of any crop, and repair it speedily by making a fresh sowing. In carrying out the arrangement for the distribution of vegetables secure a warm, dry, rich spot for *Kidney Beans*, a position comparatively sheltered and moist for summer *Peas* and *Beans*, and in the later sowings allow increased room between the rows for *Broccoli* and *Winter Greens*. Early *Peas* and *Beans* coming into bloom may be stopped. Early *Potatoes*, on their appearance, must be protected. Reserve a cool shady spot for summer *Turnips* and *Lettuce*. Secure plenty of good *Parsley* in highly-manured beds at the nearest end of the kitchen garden. Employ lime, soot, and sharp eyes against slugs, and keep the hoe employed in repressing weeds.

FRUIT GARDEN.

A sloping bank should now be prepared, and planted with runners of Alpine Strawberries for fruiting in September and October. Plant three in a patch at intervals of 15 inches; the ground between to be covered with slates when the plants have become established. Take care to thoroughly clean all Strawberry plantations before the runners come out. Trained fruit trees, especially Peaches and Cherries, require particular attention at this season in regard to stopping, disbudding, &c. The injurious effects of the late frosts may reasonably be feared. After the blossoms are fairly set advantage should be taken of a fine morning to wash the trees with the engine, for the purpose of removing decayed blossoms and destroying the green fly. Thin suckers from Raspberries, leaving four or five to each stool.

FLOWER GARDEN.

The late ungenial and frosty weather renders the management of bedding stock difficult this season, for it is still dangerous to risk even the hardier plants from under the protection of glass. All that can safely be done until the weather changes, in the way of hardening the stock preparatory to its being planted out, is to give as much air as circumstances will permit without injuring the plants, and to place Calceolarias and the stronger Verbenas in turf pits where they can be securely protected at night, and sheltered from drying winds. Such subjects should be turned out in cold pits in fine very sandy soil, which will save trouble in watering and be much better for the plants than keeping them confined in small pots. Tender annuals that have been raised in heat should be pricked out in light soil under hand-glasses, in order to strengthen them before planting-out time. If not already done, hardy annuals should be sown after the first shower, and do not forget plenty of Mignonette and Stocks, the fragrance of which will always render them favourites. Look over the stock at present in flower, and mark the most admired for propagation at the proper season. Thoroughly dress both beds and borders. Prepare stations on lawns for extraordinary specimens of ornamental plants, as large Fuchsias, &c. Rolling and mowing should be proceeded with unremittingly. Newly-laid turf should be levelled and rolled now the ground is damp, that an even surface may be obtained. Visit shrubs lately transplanted, and see that the earth is well closed over their roots; support, if necessary, with stakes. Roses must be visited frequently, and the removal of superfluous buds effected. Tulips must now be sedulously attended to; the hoops which have supported the nets should be moved higher up, or the stems will be apt to be drawn. The sticks for support should be inserted, one to every four stems; to these sticks metallic wire should be attached, one end encircling the stem of the Tulip; this keeps them erect and prevents damage by wind, &c. The sticks to which the shoots of Carnations and Picotees which spindle for bloom are to be attached should now be inserted in the pots. Seed must be sown in boxes or shallow pans immediately. Attend to the top-dressing of Pinks and the propagation of Pansies. Seedlings of the latter which have any very decided good properties should be again seeded from, in order, if possible, to combine the improvement with other good qualities; it is only by degrees that perfection is attained. Harden-off Dahlias, and when the Pink plants are throwing up too many shoots for blooming cut them back, if strong, to three shoots; if weak allow only one. Remove Auriculas to their blooming-stage, protecting the blooms with a slight awning.

GREENHOUSE AND CONSERVATORY.

The gaiety and interest of the floral display in the conservatory need not at this season suffer in the slightest degree. Roses, Pinks, Cinerarias, and Pelargoniums should still be afforded by the forcing pit. Prominent amongst the many brilliant plants that embellish our greenhouses stand the Azaleas; their profusion of blossom, and its rich and varied shades of colour, their elegant habit and easy cultivation, altogether render them indispensable in every collection. Some care will be requisite, in the event of bright warm weather rapidly succeeding the ungenial time we have suffered lately, in shading and watering many plants which have made an increase of growth and succulent wood. Give air whenever it can be admitted with propriety. Among the winter-blooming plants we have few that are so attractive and so useful as Gesnera oblongata and Euphorbia jacquiniæflora, both being profuse bloomers and remaining long in beauty. These should be extensively grown wherever winter flowers are valued, and even at the expense of neglecting some of our more recently introduced subjects, they should be afforded every necessary accommodation and attention at the present time in order to secure good specimens for next winter. Attend also to affording Corræas sufficient pot room and a growing temperature, so as to induce free growth at the present season and to get the wood well matured early in autumn, which is the secret of having them in fine bloom throughout the winter. Chinese Primulas, especially the double varieties, are also deserving of every attention, and should not be neglected at the present time. Pot-off seedlings of the fringed varieties, and encourage them with a moist genial temperature, shading them slightly on bright days. Unless there is a good stock of young plants of the double varieties in hand, the flowers should be picked off the old plants as soon as they show any symptoms of weakness, shaking the exhausted soil from the roots, and repotting in light fibrous peat well intermixed with sand, keeping the plants well down in the pots, and placing them in a warm shady situation. This will obviate the difficulty which many growers experience in the management and propagation of these showy winter flowers; for, if the plants have not been too much exhausted by flowering, young roots will be freely emitted from every branch, and where this is the case the plants should be broken up and repotted separately, affording them a rather warm and thoroughly moist atmosphere until they become well established, when with ordinary care they will grow freely and form fine specimens before winter. Fuchsias intended for large specimens will require to be shaded from bright sunshine, and will be greatly benefited by a liberal supply of manure water; where free growth is expected from these after this season, the atmosphere can hardly be kept too moist. Young specimens of greenhouse hardwooded plants should be kept as moist and warm as can be done without inducing weakly growth. See that these are properly supplied with water at the roots, and do not allow them to sustain any check from want of pot room.

STOVE.

Attend to the training of the shoots of twiners as they advance in growth, and do not allow them to become entangled before giving them attention; also attend to the stopping and training of other plants, and afford free-growing subjects plenty of pot room. Achimenes and Gloxinias filling their pots with roots will enjoy an occasional watering with weak manure water. Persevere in keeping down insects, which, if allowed, will increase with great rapidity. Very little fire heat will now be necessary if the practice of shutting-up early in the afternoon be adopted. Proceed with repotting Orchids as they may require it. Do not use the syringe too freely among those starting into growth, but keep the atmosphere thoroughly moist. See that specimens on blocks and in baskets are not allowed to suffer from the want of water, for when the soil in baskets is once allowed to become thoroughly dry the water is apt to run off; when this is found to be the case the baskets

should be immersed in tepid water until the soil be thoroughly soaked.—W. Keane.

DOINGS OF THE LAST WEEK.

Never was there a better exemplification of an April month —sunshine and cloud, storm and tempest, hail, sleet, snow, and frost, all in rapid succession, and demanding, therefore, care and watchfulness on the part of the gardener. Many of the changes have been quite beyond our foresight. For instance, after an exhaustive day on the 26th, with a rapidly-rising barometer, and expecting a beautiful night, we were roused by a perfect flood of rain between 11 and 12 P.M., which set all waterspouts at defiance, the water running over them in torrents. Fortunately the rain, though heavy, was warm, and therefore, except by flooding, did good.

KITCHEN GARDEN.

Our chief work has been clearing off Lettuces, earlier Broccoli, &c., so as to find room for succession Peas and the first sowing of Scarlet Runners. We used to transplant the latter in the middle of May, and they transplant well; but frequently, from press of other work, they were too advanced before we could transplant, and, though we still transplant, we chiefly depend on sowing, red-leading the seeds and placing some limy mixture over them to keep slugs from touching them. We sowed our first Dwarf Kidney Beans out of doors in a sheltered place. Sowed also in small pots to transplant under protection.

We never sow many Radishes out of doors at one time, but as soon as one crop of seedlings is fairly above ground we sow again. Radishes and summer Spinach we take as temporary crops between Peas and Beans; further on we sow Turnips and Radishes in alternate rows, the Radishes being removed to give room for the Turnips. We sowed the latter out of doors. This year we have dispensed with forward Turnips under glass and other protection, though few things are sweeter than a forced Turnip, or rather forwarded one, when from 3 to 4 inches in diameter. Potatoes forward are good, and as yet show no signs of disease. The most forward out of doors were injured by the frost and snow of last week, but we do not think they will suffer much.

FRUIT GARDEN.

Strawberry plants are looking well, and promise to be fruitful. We gave the ground a good shallow hoeing, and raked off some of the roughest of the manure that had been laid between the rows all the winter. A dressing of lime and soot will now be of great advantage, not only as manure, but to drive away slugs and snails. Even a very slight sprinkling of salt between the rows, applied so as not to touch the plants, we have also found useful. The salt also helps to keep the ground moister in dry weather.

As stated last week, we find that the bloom of fruit trees exposed suffered considerably. Some bunches of Pear bloom look as if scathed with lightning. One tree especially has suffered severely. We removed foreright shoots from Apricot and Peach trees. In the orchard house we thinned out the young shoots, but left plenty for a second or third thinning, as it is always bad policy to give a sudden check to upward or downward growth. Nipped out the points of shoots of trees in pots; this is always better than taking away the ends of the longest shoots. The mere nipping out the terminal bud causes little check, and yet the shortening is more effective. Some years ago we had a striking proof of this. In growing Potatoes in frames the shoots grew to a greater length than we wished. In one light, with a small knife, we merely nipped out between the thumb and finger the termiual bud, so that growth should be more lateral than extending upright. In the other light we nipped off from 1 to 2 inches of the points of the shoots. Several frames were treated in the same manner. The nipping-off the points of the shoots caused the tubers to be fully three weeks later in becoming fit than where the mere terminal bud was nipped out. As regards the time at which the tubers ripened, there was no difference between those nipped and those of which the shoots were untouched. Even as respects fruit trees, unless when a check is desirable, it is as well to avoid it by nipping out the points of young shoots instead of cutting away some inches from the points.

Plenty of air is the great safety-valve for orchard houses built with large panes of glass. Already we hear of several bad casualties, entirely owing to keeping the house shut up too late in the morning. It would be safer to give air all night, when it could not be admitted early in the morning.

We watered trees in pots and borders. The vegetables, such as Lettuces, that proved so serviceable during the winter in the orchard house, are almost cleared out, as there are now plenty on raised banks out of doors, not a plant having failed on these ridges notwithstanding the changes of the winter. Peach houses and vineries have also been watered inside, and some time has been taken up in removing and replacing Strawberry plants in pits and houses. We have only one good place for early Strawberries—shelves in a Peach house having a roof with an angle of 45°. In low pits we have always too much damp in the early months, which, even with air on night and day interferes with the free setting. We hope to have a little house for Strawberries alone in their season, and where the body of air enclosed would be four times that found in a common pit. On the whole the plants have done fairly, but not so well as last year. On filling a pit with fine plants of British Queen we gave the walls, piping, &c., a good coating of sulphur, and will admit air freely for a week or ten days to bring them on gradually.

ORNAMENTAL DEPARTMENT.

Moving, rolling, preparing, and much other work have been the order of the day. We shall turn up uncropped flower-beds once more in the rough state, and in ten days or so will probably have them dug level. The more turned and the rougher their surface now, that the soil may be mellowed and sweetened, the better will the plants succeed. If we had time, and the weather were sunny before planting out, we should like to turn over the beds with a spade every second day, thus turning down the warmth of the sunbeams, and so making every bed a sort of hotbed. There can be no comparison between beds thus treated and others merely dug and made ready before planting. We know that such care can rarely be given, but that is no reason why the best way should not be mentioned. Even as respects kitchen-garden crops, we never gave an additional digging without the crop paying for the extra outlay.

We shall finish propagating for the flower garden this week, but will have much work to do in pricking-off and forwarding Lobelias, Pyrethrums, Amaranths, Iresines, and Perillas. Many of these will succeed all the better ultimately from being rather small now, as they grow fast in a little heat, and on Monday we shall make some slight hotbeds to bring them on, but giving a little air at night at the top to guard against anything like steam or condensed vapour.

Most of our readers will have their Asters, Zinnias, and similar subjects forward. We only sowed last week in a mild hotbed. With scarcity of room when we sowed early, the plants were injured by standing about, and this led us to sow later; and the plants, experiencing less check, did on the whole better, and gave less trouble. For those who are content with an everlasting flower in winter, Zinnias should be sown, and transplanted about the end of May. The blooms will be found most useful.

Our trenches of Calceolarias have been left exposed during fine nights, but a little protection has been given to variegated Geraniums. *Geraniums* will do very well planted out without potting, but when it is desirable not to see them welt at all, it is well to put them in small pots. A thousand 60-sized pots have to do good service with us as respects Geraniums, potted singly, kept under glass, and encouraged to grow, say in the vinery border covered over. As soon as the roots form a ball, out the plants go into a trench of rich soil and leaf mould, and the pots are used for another succession. This involves some labour, it is true, but then from September cuttings we obtain stout flowering plants by the end of May, that make a show at once, and never seem to suffer from the removal. These plants, turned out in a trench with a little ball, thrive far better than those turned out at once from a pot. In the former case the fibres are protruding from the ball, and ready to strike into the ground at once. Where time can be afforded, nothing is better than the turf pots we described last year—that is, turf 2 inches thick and of fibry material cut up into pieces 3½ to 4 inches square, a hole of 2½ inches scooped out in the middle, the rooted cutting placed there and covered with light rich soil, and the pieces of turf set side by side in a bed with a little heat. These cuttings when established, planted turf and all, with the fibres bristling all round the turf, do exceedingly well. We have also from our store boxes, in which we rarely give more than 1½ inch to a cutting, planted out Geraniums in temporary beds, lifting and planting without any attempt to secure much of a ball. These succeed admirably ultimately, but for a fort-

night or three weeks after planting they will lose a number of leaves.

Much has been done during damp days in potting, and much more remains to be done in subdividing Florists' and Fancy Pelargoniums so as to have successions. We hope some one will help us to the names of the earliest; as yet we find nothing better than the dark Dennis's Alma, the lighter Gauntlet, and the white Alba multiflora. We must endeavour to overhaul Poinsettias, Justicias, and Euphorbias, which have been lying on their sides in a cool place to keep them safe. These are such charming decorative plants in winter that we must now set them to grow.—R. F.

TRADE CATALOGUES RECEIVED.

T. L. Mayos, Lugwardine, Hereford.—*Price List of Bedding and Miscellaneous Plants.*

W. Montgomery, Haghill Nursery, Duke Street, Glasgow.—*Catalogue of Florists' Flowers, Bedding Plants, &c.*

Robert Parker, Exotic Nursery, Tooting.—*Catalogue of Miscellaneous Plants for Bedding, &c., Pyrethrums, Violets, Fruit Trees, &c.*

E. Crook, 5, Carnaby Street, Regent Street, London.—*Illustrated Catalogue of Poultry Appliances, Aviaries, Wirework, &c.*

TO CORRESPONDENTS.

Helichrysum dichotomum (*H. B. L.*).—We do not know it. Probably it may be called by some Gnaphalium dichotomum, and by others Chrysocoma dichotoma. That known by the last name is yellow-flowered, and is a native of the Island of Teneriffe.

Vine Overcropped (*A. M.*).—Thin the bunches severely, and remove some of them. It would probably weaken your Vine for another year merely to apply farmyard manure water to the roots.

Aucuba Pollen (*E. M.*).—There is no female pollen. It is a yellow powder produced only by the anthers of the male flowers, and is to be applied to the pistils of the female flowers by the aid of a camel's-hair pencil.

Male Scale Insects (*Canjec.*).—They are obscurely winged; but even if tobacco smoke would kill them that would not remedy the evil. The females have their brood under them.

Plants from India (*Sir Astley*).—The Orchids will require a house with a temperature of 65° at night, and 70° to 75° by day without sun, or 85° to 90° with sun, from the heat of which they should be shaded by a moveable screen of canvas. When they arrive lay them on the stage and sprinkle them with water lightly two or three times a-day, maintaining a close atmosphere, and when they begin to grow pot them. For this purpose larger pots than usual should be used; fill them to two-thirds of their depth with broken pots or crocks, and then completely with a mixture of chopped sphagnum and fibrous peat, a fourth of lump charcoal and crocks. Compress this firmly, and, raising the compost above the rim of the pot, and place the plant upon it, just covering the roots with moss. If they are kinds that require blocks of wood, cover the block on one side with a little chopped sphagnum and peat, and then place the plant on that, covering them lightly with moss, as in the former case, and secure with copper wire. We should advise you to visit some place where Orchids are grown, and you will have a better idea of what you will need, and how these plants should be done. You will find full instructions for Orchid culture in the "Orchid Manual," which may be had by post from our office for 2s. 7½d. The "Cattleyas" and "Indian Lilies" we should pot in a compost of two parts light fibrous loam, one part sandy peat, and a part leaf soil, with a sixth of silver sand, draining the pots well, and employing pots twice the diameter of the bulbs or roots, lightly covering the bulbs with soil, and surrounding each plant with silver sand. Water them so as to keep them moist; when they are growing freely do so copiously, and maintain a moist atmosphere. To grow the plants well it will be necessary to convert your house into a stove.

Cannas Planting (*W. B.*).—We should at once shift the plants which are a foot high into 6-inch pots, and grow them on for a time in heat, commencing, however, to harden them off by the middle of May, and not planting out until the beginning of June. Place them out of the pots 18 inches apart every way, enrich the bed with leaf soil or well-rotted manure, so as to secure good growth, and water abundantly in dry weather. If the plants are weak, and would have a mean appearance planted at 18 inches apart, they may be put closer. The main point is to secure good foliage and plenty of it. The plants may be taken up in autumn and potted.

Strawberry Plants Potting for Forcing (*G. S.*).—The "nice little Strawberry plants planted out last autumn 6 inches apart" will answer for potting for fruiting in a greenhouse next spring. Take them up now and pot them into 4-inch pots, running the soil quite hard, and keeping the crown high in the centre of the pot. Afterwards plunge them in coal ashes in an open situation, supply them with water throughout the summer as they require it, and remove all runners as well as bloom. In July or early in August shift them into larger pots, which for these plants should be 7-inch, giving them plenty of room, and an open sunny situation, with abundant supplies of water. In October they should be removed to a warm sheltered spot, and plunged to the rim in coal ashes, being protected by a few mats in very severe weather. They may be taken into the greenhouse in January. Though plants of this kind answer very well, we prefer the first runners of the current year layered in small pots, and when well rooted detached, and potted into 6-inch pots early in August. In this case you will not need the other plants. They may be removed with balls, and planted as a permanent plantation.

Cucumber Plants Failing (*Idem*).—The plants may have failed from a variety of causes. We have seen them eaten up by thrips and red spider, and also scorched by the sun in consequence of their having been kept very close and moist during a period of dull weather, and when the sun's rays fell on them powerfully. We think the latter, aided by the rank steam from lumps of dung that may have been given the bed during the dull period, is the reason of your plants failing. A little air, and light shading on the change of weather, would, we think, have saved you the mishap. We have experienced the same sort of thing often, and now after a period of dull moist weather always take the precaution to shade the plants from fierce sun for a few hours in the day, and for a few days, until the foliage is able to bear its powerful rays. We do not think the soil likely to cause it, though it might were it full of bones, and especially fresh ones, containing a large amount of fatty matter. Pure loam is all that is required for Cucumbers in frames on dung beds.

Sea-kale (*E. B.*).—The pots are not to plant in, but to cover over the plants to blanch them. Send 4½d. in postage stamps to our office, with your direction, and order "Kitchen Gardening for the Many." It will be sent to you post free, and contains full directions.

Exterminating Ants (*B. B.*).—They may be driven away by repeatedly strewing guano, or pouring over their haunts the ammoniacal liquor from the gasworks, or you may pour into them a solution of Clarke's insect-destroying compound at the rate of 2ozs. to the gallon. You may, after the fruit is set, syringe the trees with a solution of the same compound, once a-month up to August, or oftener if the insects appear, doing it in the evening, or early in the morning, for ants are early and also late workers. The compound will free your trees of other insects as well as the ants, as aphis and red spider.

Polyanthus Characteristics (*D.*).—The following is from our "Florists' Flowers." For five postage stamps you can have the book by post. It contains full cultural directions as well. "Characteristics of a good Polyanthus.—The plant should be healthy; the foliage large and abundant; the stem stout enough to bear the truss well up above the leaves, which should cover the pot, and rise up in the centre; from the centre of the leaves the stem should rise; the truss should consist of at least five flowers, and the footstalks of each flower be able to support each bloom level with the rest. Each flower, or pip, should be round and flat, neither inclined to cup nor reflex. The pips should be divided, near the outermost edge, into segments; each division or segment, should be slightly indented or scolloped in the centre. Each flower should have a yellow centre, or eye; in the centre of that there should appear a tube containing the anthers, but the pistil should not be seen. This yellow centre, including the tube, should be of the same width as the ground or body colour, which colour should either be a rich dark crimson or a bright red. Round this body colour the margin, or lacing, should appear of a uniform width surrounding each petal, and continuing down the centre of each to the yellow eye. The colour of this lacing, or margin, should be uniform, whether it is sulphur, lemon colour, or clear yellow."

Glazing a Garden Frame (*A Ten-years Subscriber*).—We should prefer the ribbed 21-oz. glass for summer, and the plain for winter; in hot weather even the ribbed may need a little shading. For all purposes we would therefore prefer the plain, as we should have more light in winter, early in spring, and late in autumn, and could dull the glass in summer. Fearing breakage we should have five squares of 12 inches each, otherwise we should much prefer three squares of 20 inches each. With ordinary care, and with 21-oz. glass, there should be few breakages.

Various (*Kentishman*).—All the Colletias are natives of either Chili or Peru. The second is in Aucuba is long. We shall be much obliged by a list of plants wild at the place where you live, and for any notes relative to them. Is it near Whitby?

Lilium auratum Culture (*Exotic, Dublin*).—We should top-dress the plant, if not already done, with some good rich compost—viz., equal parts turfy loam; sandy peat, leaf soil, and well-rotted manure, adding a part of silver sand. Water freely, but only when the soil becomes dry, and at every alternate watering give weak liquid manure. Do this until the buds expand, but take care not to apply it in too powerful doses; three-quarters of an ounce of guano to a gallon of water is sufficient. The plant cannot have too light and airy a position. In your warm greenhouse it is likely your plant will bloom before the last week in June. We should give it the coolest position, taking care that it have plenty of light from all points. Beyond this your plant will not need anything except turning round frequently, so as to keep the stem erect, turning opposite parts to the light. Tall green stakes you must destroy at once. Envelope the plant in some canvas, placing stakes all round so as to keep it from the plant's foliage, and fill the enclosed space thoroughly with tobacco smoke. If the leaves are dirtied by the secretion of the insects, sponge them clean with clear water, at the same time taking care not to injure the leaves. (*Black Edge*).—There is no cause for surprise that your bulbs decayed planted in soil subjected to a temperature varying between 60° and 80°. This Lily is a native of Japan and quite hardy. It should be planted out of doors. See a note on the subject by Mr. Robson in our last volume, page 139. Your Arbutus injured by frost is A. Andrachne; it is more tender than the common Arbutus. Prune off the injured shoots now, it will produce fresh shoots in the summer.

Cucumbers and Melons in one Frame (*C. T. S.*).—Melons require a stronger soil (strong loam) and a drier atmosphere, and a drier soil when setting the fruit and ripening than Cucumbers. Divide them with a wooden partition, and then you can give them respectively such treatment as they require.

Flower-garden Planting (*A Subscriber, Glasgow*).—We consider that at 3, 3, at each end, your double group terminates, and whatever you put in 6 and 7, mixtures or otherwise, will not interfere with the main outlines. Then, having reference to 4, 4, 4, and 5, 5, we would change the centre No. 1, Centre Tom Thumb Geranium, ring of dwarf yellow Calceolaria, as Aurea floribunda, deep edging of Purple King Verbena. In 4, 4, 4, 4, Pink Geranium edged with a good band of Mangles; 5, 5, Mrs. Pollock; 2, 2, as proposed, Scarlet Geranium, then white-edged Geranium, edged with Perilla stumped in. Iresines would be better, but the Perilla will look well if kept down. For 3, 3, yellow Calceolaria, we would prefer one of the dwarf blue Ageratums to blue Lobelia, as making a better and more compact outside line. Your ribbon border, 8, 9, 10, will look well if you have a dwarf yellow Calceolaria in front. If doubtful as to height, better put the Verbena in front. (*F. P. G.*).—There is just one difficulty as respects ourselves and your proposed planting, and that is, that we do not know Poly something atropurpureum which you propose for the central and largest clump. In our own practice, too, we like to begin at the centre and work outwards, whilst you begin at the extremities and work to the centre. We presume the beds on the whole are too narrow to permit of edging, otherwise that makes each bed more complete in itself. We would make as proposed—1, 7, Crystal Palace Gem Geranium; 6, 2, Amy Hogg; 8, 11, 3, 3, we would do as you propose 5, 3—some plants of Abutilon Thompsoni filled up with Coleus Verschaffelti—as we have little faith in any others edged with Centaurea. We think this would be more satisfactory than using Portulacas, which are not so much to be depended on, and require the sun to show them off well. Then these four figures, 3, 5, 8, 11, being dark

with light edging, we would make the central figure light, 4, with a dark edging, say Bijou, Flower of Spring, followed with Cloth of Gold, Golden Chain, and edged with Perilla kept cropped, or better still, Iresine Lindeni. The four figures, 9, 10, 12, 13, filled with Calceolarias, bedded with Lobelias, we would not disturb. Looking down on such an arrangement, we do not think you will be disappointed. The Golden Pyrethrum does best from spring raised seedlings; if just fit to be handled now they will be better than if larger, so far as the autumn is concerned. Other Pyrethrums require trouble to keep them in continuous flowering. The Golden should never bloom. You might throw into No. 4 all the scarce variegated plants you have of the Geraniums; the dark edging would make all right, and that would be correct if the edging of 3, 5, 8, 11, is light. (*Tyro*).—We have no doubt that your proposed planting will look very well, and you will have a great variety in your group of nine beds, and the three beds extra. We cannot say, however, that we like this variety. Perhaps we are wrong in our simple ideas of pairing for the sake of uniformity. Now, the test is everything, and we advise you to plant No. 1 as indicated, and then pair 2, 3, and 4, 5; 6, 7, and 8, 9, and we feel almost sure if you cast your eye over the supposed colouring you will like it better than the greater variety.

Bedding-out Love-lies-bleeding (*J. Dick*).—We have had Love-lies-bleeding very splendid with plants from 12 to 18 inches apart. Allowed to grow naturally these would reach from 24 to 36 inches in height, and more than that if the ground is rich. The beauty greatly consisted in the drooping reddish racemes. We cannot, from our own experience, advise pegging this plant down. We have tried it for a nearly front row, but though we partly succeeded, the pegging-down destroyed the distinctive hanging character of the plant so much that we do not feel disposed to peg. This plant never looks better than along with a good kind of Prince's Feather as a centre, which sends its crimson spikes up into the air, planting a band round the latter of Love-lies-bleeding where the rope-like wreaths have room to hang down. With these two plants a gorgeous bed may be made for a few pence.

Melon Leaves Scorched (*C. S.*).—The Melon leaves are scorched by strong sun striking on them whilst wet, and from no air having been given before the sun's rays were very powerful. A slight shade would have saved the leaves. Similar effects might have been produced by the fumes from pipes coated with paint, by an escape of smoke from a flue, or by ammoniacal vapour.

Various (*A Subscriber*).—Pansies succeed admirably in a compost of two parts loam from rotted turf, one part leaf soil, and half a part thoroughly decayed dung, adding a fourth part of sharp sand. Polyanthus and Primrose seed should be sown at once in pans well drained, filled to the rim with a compost of two parts light loam, and half a part each of leaf soil and sandy peat, with half a part of silver sand. The surface should be made very fine and firm; scatter the seeds evenly, and cover them very lightly with fine soil. Water very gently, and place in a cold frame or cool house; keep the pans close, or cover them with a hand-glass, and shade from sun so as to avoid much watering until the plants appear, when they should have air freely, and be kept just moist. When they can be handled prick them off into prepared ground on an east border; then keep them moist, and shade from bright sun for a few days until established. We think the "grubs" must be slugs, for which dust the plants with fresh lime in moist weather in the evening, or you may dust the plants with dry soot, and it will not only be very obnoxious to the slugs but prove an excellent manure. Twelve Gladioli at 1s. or less each are—Sir Walter Scott, Le Dante, Adele Souchet, Oracle, Charles Dickens, Noemi, Lord Raglan, Velleda, Napoleon III., Rembrandt, Calypso, and Berenice.

Distorted Peach Leaves (*A. H. M.*).—Gardeners call the disease "blistered leaves." It occurs in greatest virulence where the borders are imperfectly drained; but the immediate cause is exposure to the night frosts of early spring. Draining and protection are the remedies.

White-flowered Bluebell (*F. H.*).—It is not usual. The Campanula patula is especially liable so to sport.

Crates (*J. K. K.*).—Apply to Mr. Norman, Basket Maker, Ely. They cost about 4*s.* 6*d.* each.

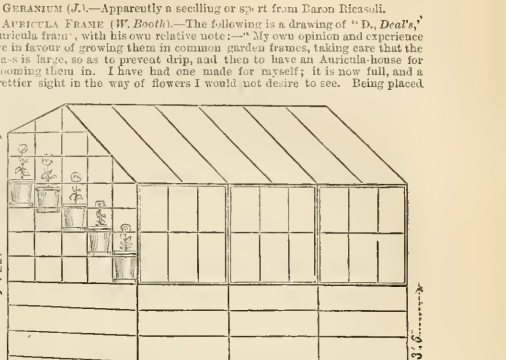
Seeds from India—Tropæolums (*S. W.*).—The whole of the plants of which you have received seeds will require stove treatment, and will not succeed in a cool greenhouse. Zinnias are half-hardy annuals. If you wish to try them you may sow all the seeds in a compost of two parts loam, one part peat, and one part leaf soil, with a free admixture of silver sand. Just cover the seeds with fine soil, and place them in a hotbed of 70° to 75°. Tropæolums suitable for a greenhouse are T. aureum, brachyceras, grandiflorum, Jarratti, pentaphyllum, and tricolorum, all tuberous-rooted, and T. Lobbi, speciosum, and Triomphe de Gand, which are greenhouse herbaceous plants. T. Lobbi or Lobbianum is not like annua Nasturtiums, which are T. majus and T. minus. We shall have an article on Tropæolums in an early number.

Flowering Plumbago capensis at the End of August (*Annie*).—We presume your plant has already been pruned, and has pushed shoots a few inches long, in which case we should repot it at once, using a compost of two parts fibrous loam, one part leaf soil, one part sandy peat, and a free admixture of sharp sand, with good drainage. Give a moderate shift, and remove the soil that can be taken away without injuring the roots. Water carefully for a time until new roots are formed, and then encourage growth with a moist but well-ventilated atmosphere, and plentiful supplies of water at the root. It will succeed better in a warm greenhouse or cool stove until early in July, when we should place it in a light airy position in a greenhouse, and give only enough of water to keep the leaves fresh. Train the plants neatly, but allow the shoots to hang rather loosely. It will flower at the time you name. Water more freely after the trusses form. It is a greenhouse shrub, and is well suited for pillars in a greenhouse or conservatory. It may be trained on wires as a climber, but it is not actually one.

Mowing Machine Setting (*F. J.*).—The rollers should be so fixed that the sole plate against which the knives work may be half an inch from the ground. This will not cut the grass too closely, nor, on the other hand, make the sole plate drag on the ground. In order to keep a lawn well, do not cut too closely, but cut very often, so as to have the grass even in growth. The cause of the machine clogging when you mow without the collecting-box, is most likely the length of the grass, and its consequent withering and coming between the knives at the following cutting. We do not approve of cutting the grass and leaving it on the surface. It may answer in some cases, but where the grass grows at all long, if it is cut and left on the surface the appearance is untidy. A light dressing of guano once a-month would not be too much, mixing three bushels of sifted ashes with one peck of guano. Apply it in moist weather.

Geranium (*J.*).—Apparently a seedling or sport from Baron Ricasoli.

Auricula Frame (*W. Booth*).—The following is a drawing of "Dr. *Deal's*" Auricula frame, with his own relative note:—"My own opinion and experience are in favour of growing them in common garden frames, taking care that the glass is large, so as to prevent drip, and then to have an Auricula-house for blooming them in. I have had one made for myself; it is now full, and a prettier sight in the way of flowers I would not desire to see. Being placed



on a level with the sight, the plants can be seen without the trouble of stooping over them. The front sashes can be drawn up so as to give air without allowing the cold wind to blow upon the plants; and if care be given to ventilation and shading, they may remain in this blooming house during the summer. It may be, perhaps, objected that this is only suitable for a large collection; but if the house be made small at first, it can always be added to."

Blight in the Air (*E. L. J.*).—The dark mist in the air, popularly called a blight, is only the moisture (always greatest in the summer) becoming visible, owing to a current of cold in the higher regions. Warm air holds in solution much more moisture than cold air. The mist has nothing to do with injury to plants.

Names of Plants (*Thornhill*).—1, A male plant of Dog's Mercury, Mercurialis perennis; 2, Probably Ballota vulgaris, Stinking Horehound, specimen imperfect. (*Young Subscriber, Ireland*).—1, Selaginella helvetica (?); 2, Cytisus; 3, Asplenium Trichomanes; 4, Scolopendrium vulgare; 5, Polypodium vulgare; 6, Sedum reflexum (?); 7, Saxifraga hypnoides; 8, Ruscus aculeatus. (*A. D.*).—1, Nephrolepis exaltata; 2, Asplenium furcatum. (*Oswell*).—1, Selaginella Kraussiana; 2, Another species not determinable. (*J. L. G.*). 1, Nephrodium setigerum; 2, Indeterminable; 3, Selaginella caulescens; 4, Selaginella Kraussiana; 5, Adiantum curvatum (?); 6, Adiantum hispidulum; 7, Adiantum Capillus-Veneris; 8, Asplenium flucidum; 9, Gymnogramma chrysophylla; 10, Adiantum hispidulum; 11, Selaginella apus. (*Rus*).—Aspidium acrostichoides; Lotus jacobæus; Pinulea, perhaps linifolia. (*A Young Gardener*).—1, Cryptomeria japonica; 2, Libocedrus decurrens; 3, Ligularia Kæmpferi. (*C. W. Symon*).—Oncidium, probably excavatum. (*Orchid*).—Cologyne cristata. (*C. T., The Oaks*).—We cannot be certain from such a fragment, but think it is the Hemlock (Conium); but if it is, the honey secreted by its flowers is not poisonous. (*G. W. Tate*).—Equisetum palustre, Marsh Horse-tail.

POULTRY, BEE, AND PIGEON CHRONICLE.

MANAGEMENT OF POULTRY AT EXHIBITIONS.

I am very glad the question of the treatment of birds for exhibition has been raised and discussed by practical men, as it is by such means that novices acquire from the experience of others a knowledge of the subject.

On reaching the show the birds are generally very thirsty and hungry, and the very first thing they do on being put in the pen is to quench their thirst, and then satisfy their hunger. The water-tin is generally filled before they commence to arrive, and as it is easy of access and contains plenty of water they are sure to drink very freely, distending the crop and chilling themselves. I have seen them stand with blackened combs, shivering and moping, the very picture of misery, although but a short time before they looked the perfection of health and condition. The plan adopted at the last Crystal Palace Show was to let no bird have any water until it had first eaten some food. However hungry the birds may be, there is no fear of their eating too much; they cannot swallow food until they have some water, and the food warms and nourishes the body, while the cold water produces just the opposite effect. The result of the mode adopted at the above Show was that the health of the birds while there was unusually good. Unfortunately one or two died on their return home, but that proceeded, as I said in my last communication, from the very severe weather, want of food, and the contrast to the previous attention they had received.

To put coloured or yellow sand in pens is very injurious. I have seen the best Spanish cock in a show passed unnoticed by the judge simply because the bird's lobes in drinking had got into the water, and while picking up his food draggled amongst this

sand, of course spoiling the appearance of his white face. Then, again, how the plumage of all the Light varieties is soiled and discoloured by it, particularly if they happen to be at all relaxed. Very fine sifted gravel (the dark kind, which even if washed in water will not colour it), is the best of all. This should be changed every day, otherwise it will become very foul. Fowls while at a show ought not to be fed too freely; give a small quantity each time, but frequently, and every scrap should be eaten up at the time of feeding. I like to see fowls on the look-out for food; they show themselves off so much better than when their appetites are satisfied, and if too much is given at one meal it is left, becomes mixed with their excrements, and instead of doing the birds good it injures them, frequently laying the foundation of many diseases.

Now a few remarks about the pens. I must say I like the wire pens, no matter what may be said against them; they give such a clean, regular, and finished appearance at a show, especially when one looks down immense rows of pens as seen at the Crystal Palace. If a strip of calico or baize is run along the backs of them, they are, to my mind, far preferable to the wooden ones which are coated with whitewash or colour, which rubs off on the plumage.

With respect to the treatment of the birds on their return, it must be remembered that they have been kept in close confinement, have been often irregularly fed with bad food, which in some cases has become mixed and is eaten with their own excrements, that they have had a long journey to and fro—in short have led quite a different life to that to which they have been accustomed, and this and the excitement must affect more or less their constitution. It is, therefore, necessary that they should be very carefully fed and attended to. On arriving at home their first meal should consist of warm bread and milk. This satisfies both their thirst and hunger, is easily digested, and affords nourishment to the exhausted bird almost as soon as eaten. After a few hours a little castor oil is very beneficial by cooling the body and cleansing the stomach; and for the first two or three days they should be fed on soft food. The more exercise and pure air they have the better, not forgetting the dust bath, in which they will be sure to revel, and a grass run if possible. I venture to say if they are treated in this way the blackened and fallen comb, the puffy and inactive bird, will soon assume the original healthy appearance, and fewer deaths would occur amongst exhibition fowls. Ours are treated in this way, and we have never lost a bird from exhibition. Still we do find shows are most injurious to fowls intended for breeding purposes. This cannot be wondered at, as the treatment to which the fowls are subjected is so entirely opposite to the course pursued by nature. The male bird seems to suffer the most; he pays but little attention to the hens, and his reproductive powers are weakened. The eggs from hens that have never been shown will often be found to contain chickens which seem to have died in the shell after the hen has been sitting on them from ten to fourteen days, and even if a few chickens are hatched they are weak and sickly, and frequently die, or are very small. We have had sitting after sitting, and not a single chick; but this has always happened when we were attempting to breed from the birds that were being sent from one show to another. We have grown wiser now, and seldom send our breeding stock away, and the result is we now meet with a fair amount of success in hatching.

In reply to Mr. Wright's assertion that "it is simply nonsense" to suppose it possible for birds to be "starved to death" in returning from a show, I will only state one case out of several that I know. I take this in particular, as I believe Mr. Wright saw the very bird a few days before its death, and he even went so far as to offer a very large sum of money for it when at the last Bristol Show. This bird had been running with several hens, up to the day before sending him away to the show, over a quarter of an acre of grass land; he had not received the slightest preparation of any kind, so that he could neither be "out of condition" from overfeeding nor even suffering from a touch of "soft" plumage. When sent away from the show the secretary stated he was in perfect health, but unfortunately for the owner, after two days' travelling, he was returned dead, but hardly cold. The bird was opened by a gentleman well qualified to give an opinion, who stated all the organs were in a healthy state, and the bird died from starvation. I could mention other cases, but I think this so clearly proves that birds not "pampered" can be starved to death that it would be useless to give them.

We both agree in feeding with the very best kind of food, which must, as I stated, increase the size, especially if the birds are shut up in a pen and supplied with such nutritious and fattening food as Mr. Wright uses. They must put on flesh, and every poultryman and every successful exhibitor knows, if he expects to win, he must have size as well as quality. No animal is ever seen to perfection unless it has a fair quantity of fat, and the same with poultry.—W. J. Nichols.

Chickens' Exit at the Small End of the Eggs.—I noticed a remark on this in last week's Journal, and it is very singular, but in a batch of Partridge Cochins two weeks since, all nearly came out of the small end. I never saw this but once or twice before, and these cases were exceptions; but in the instance I now name the big end was the exception. Had these eggs been kept large end down? If so this may account for it.—F. I. Hassard, *Curragh*.

PRIZES FOR BANTAMS—BROWN RED GAME, BLACKS, AND WHITES.

Considering the many advocates in our Journal for separate classes of the above, I am surprised at the small number of real helpers when there is a chance of bringing their neglected pets to the front; but I hope by the help of "our Journal" we may yet make up the required amount to offer separate prizes at the next Ipswich Show.

For the abovenamed three classes, it will be remembered, I offered £1 second prize and 10s. for a third for each class if the fanciers would subscribe enough to give a £3 3s. cup for the first prize in each class. For the Brown Reds Mr. J. W. Will offers £1, a very good start towards the three guineas, and it is hoped the other Brown-Red fanciers will at once respond. For Blacks the same gentleman also offers £1, Mr. W. A. Taylor, 10s. 6d., R. H. Ashton, F. Tearle, and H. M. Maynard, 5s. each. Whites, though last, and at present the least noticed, are so beautiful that I cannot think they are to be left in the cold. As yet the only promises I have in their class are 5s. each from Messrs. Ashton and Tearle. I would add that, should the subscription be sufficient, a fourth prize will be given and the others increased.

It has been suggested a cock and hen should constitute a pen, with which I fully concur, and sincerely hope the old system of showing a cock and two hens (as I am sorry to say is still the system at Birmingham) will soon be numbered with mistakes of the past.—W. B. Jeffries, *Henley Road, Ipswich*.

CRYSTAL PALACE GAME BIRD AND BANTAM SHOW.

The strongest defender of the good old days must acknowledge that they had one mark upon them which these present days have but in a much less degree. That mark was cruelty. Laws were cruel, sports were cruel. Criminals were hanged for all sorts of crimes, and an attempt to reform them was not known. Men delighted in seeing animals suffer pain, witness bull-baiting, badger-drawing, cock-fighting, and the like. Now, all these are forbidden by law. Our fathers associated the Game cock with blood, vice, death; we associate the same bird with exquisite beauty and a pleasant ramble round a poultry show. It is the bird's beauty we delight in, not his fighting. Surely this is a great improvement. Then we have a Society for Preventing Cruelty to Animals; we have "The Animal World," a periodical which pleads for kindness to poor brutes who cannot plead for themselves. But there is another step to be made—to associate Game birds with beauty as well as with our stomachs. Our Wolfs, our Harrison Weirs have done much in this respect; they have portrayed the beautiful birds as they deserved to be, and made us see how beautiful they are. But a further step has been made by this Crystal Palace Show. Game birds were shown for the first time on their legs, and not hanging by their legs. The eye was won by their beauty—beauty without a gun-shot wound, or even a ruffled feather—not the stomachs won by thoughts of their savouriness. True, some full-waistcoated red-nosed old gentleman, who takes a walk in order to make a better dinner, and cheers his gluttonous mind by thoughts of the coming feast, might only see in the Pheasant, and the Grouse, and the Ptarmigan the birds minus their feathers, and twirling on a spit; but I am sure the far greater majority would not only forget the birds' eatableness, but even the sport they have known on a 12th of August or a 1st of September. The eye was charmed by beauty of form and feathering, and the gun and the stomach forgotten. I thank you, Mr. Harrison Weir, and all others who produced, more from their hearts than their heads, the pleasing idea of a live Game bird Show.

This Show must he regarded simply as a beginning, and bilious and cantankerous must that man be who would take delight to mark any shortcomings in a first attempt. The point is to start a good thing; mistakes may easily be corrected another time. The time of year was not over-suitable, but the Show could not this year be arranged to take place at any other time. The Show was for this reason a small one, but more birds are promised next year. We cannot have salmon in November, and we shall not have another Game bird show in the breeding season. May we have it, however, as a regular thing in the Crystal Palace at the proper time of the year. There is another view of such a Show—it tends to educate the mind in practical natural history.

Now for the Show itself. It was arranged at the end in the portion of the nave of the Palace near the tropical department. There were but thirty-five pens of Game birds, and just over a hundred pens of Bantams. First let me notice, that in each pen (Billett's excellent metal ones) was a fresh grass sod, lying

in the front; this plan seemed to keep the birds happy; they could amuse themselves by picking the grass, and the eye was pleased by the green, and then all dirt was hidden by the green sod lying in the fore part of the pens. This is a great improvement, and just the thing for, at any rate, a summer show. Instead of sand or chaff, a good sprinkling of fine-sifted shingle was at the bottom of the pens.

Class 1, that for Capercaillie, was unfortunately unrepresented. These birds are rare in England. Some years since there was an attempt to introduce them into West Sussex by, I think, the late Sir Charles Taylor, or Mr. Poytz, of Cowdray Park, but it was not successful. Stuffed specimens are, or were as recently as 1853, to be seen in several farmhouses in the neighbourhood of Midhurst.

Class 2 contained the gems of the Show—namely, five pens of Black Game. They seemed in excellent condition, and were apparently contented with their caged lot. The male bird with his glossy blue-black plumage, dark bill, deep blue eyes, and forked tail is indeed a noble specimen of bird beauty. To many lookers-on no doubt this bird was quite new. He is a very attractive bird, quiet, watchful; his eye, full and large, watched everyone. The female of these birds is quite different to the male, and somewhat smaller in size, her colour on head, neck, and breast being striped transversely with dusky red and black. I describe the colour of these birds more especially, because to many they were unknown. They were the very gems of the Show, and birds much suited for exhibition.

Next class, Red Grouse, but no entry. Next Ptarmigan, not any, but a Willow Grouse of a somewhat similar colour to a Ptarmigan. These birds—I mean Ptarmigans—I have often watched on the mountains in Aberdeenshire. In summer they, like the mountains, are slate colour; in winter they, like the mountains, are snowy white. Wonderful provision of Nature! It must be a keen eye to distinguish the birds—indeed you cannot, save by their movement. The Willow Grouse exhibited was grouse-coloured and white. The class for American Prairie Grouse brought no entry. Of the seven classes for different Pheasants the most distinguished, and the greatest favourite evidently, was the Reeves's Pheasant, a glorious bird, part spangled and part laced in plumage—the grandest of the Pheasant tribe. I measured the two central feathers of the tail of this variety—they were afterwards placed over the pen—and found them fully 5 feet in length. Of the other Pheasants their colouring is better known, whether the English, or the bright Golden, or delicate Silver. The hybrids, as usual, are more interesting than beautiful. What mule was ever half as pretty as either a horse or a donkey? Of the Partridge there was but one pen of English, five of the wild red-legged variety, the most restless birds in the Show. Of the pretty little Game bird sort of Partridges in miniature, I mean Quails, there were several entries of English and two of Chinese. One splendid Turkey, a hybrid, represented his class. I may note that the pens for the Pheasants are next year to be larger.

Of the Bantams, which were certainly not much noticed because of the novelty of the birds with which they were shown, there were some good pens. Of course the Black-breasted Game were the most numerous of the Game classes, but both Black and White mustered strongly. Abbreviated Rumpless and uncomfortable-looking Frizzled were there, antique-looking Cuckoos, and Nankeens very unlike the Nankeens of thirty years since were also there; but, as I said, the newly-shown Game birds took all eyes.

Further, beyond the Show towards the tropical department were arranged some cases of stuffed Game birds, particularly two of Ptarmigan in their winter plumage. There were also some coloured pictures of Game birds drawn by Wolf, and a capital lawn or garden aviary, consisting of a night-place and a day-place, brought out by Groom, of Camden Town.

Such was this Game bird Show—a good beginning, and the start once made I hope it will be annual. I hardly think that Bantams should be associated with the Game birds, as they are poultry, and shown with fowls. Why should not Parrots and Cockatoos be exhibited with the Game? Many, no doubt, are kept in and near London.

I cannot close this article without a word of thanks to Mr. Wilson, the Superintendent of the Natural History department at the Crystal Palace, and the manager of the Show. All that kindness and courtesy could do he did, and did it well. May he next year be helped by all keepers of Game birds, and then he will have a Show to his heart's content.—WILTSHIRE RECTOR.

GAME BANTAMS.—*Black-breasted*—1, W. R. Jeffries, Ipswich. 2, C. Howard, Peckham. 3, T. W. Annis, Clapham. *c*, T. W. Annis; Wingfield and Andrews, Sidbury.

GAME BANTAMS.—*Brown Reds.*—1 and *c*, W. Adams, St. Clements, Ipswich. 2, G. Morling, Lynn. 3, Ashley and Maitland.

GAME BANTAMS.—*Duckwing.*—1, F. Fielder, Southsea. 2, W. Adams. 3, Rev. J. G. B. Knight, Danbury.

GAME BANTAMS.—*Piles, or others.*—1 and 3, C. Howard. 2, Ashley & Maitland, Red Hill, Worcester.

BANTAMS.—*Gold Sebright.*—1 and 2, M. Leno. 3, Rev. G. J. Conwys, Morchard Court, Tiverton.

BANTAMS.—*Silver sebright.*—, 2 and 3, M. Leno.

BANTAMS.—*Black.*—1 and 3, M. Ridgway, Dewsbury. 2, T. Davies, Redland, Bristol. *hc*, Rev. G. J. Conwys; R. H. Ashton, Mottram. *c*, Rev. G. J Conwys; R. H. Ashton; Rev. F. Tearle, Gazeley Vicarage, Newmarket; J. Walker, Pellon Lane, Halifax.

BANTAMS.—*White.*—1 and 2, Rev. F. Tearle. 3, Rev. G. J. Conwys. *c*, Rev. J. B. Hole.

BANTAMS.—*Yellow or Nankeen.*—1, O. E. Cresswell, Early Wood, Bagshot.

BANTAMS.—*Japanese.*—1, H. S. Salsbury, Kempsey, Worcester. Equal 1, Mrs. Woodcock, Rearsby. 2, Lady E. Legg, Patshull. *c*, H. Draycott, Humberstone, Leicester.

BANTAMS.—*White feather-legged.*—1 and 2, W. Cutler, Worcester.

BANTAMS.—*Rumpless, Cuckoo, Frizzled, or any other variety.*—1, R. S. S. Woodgate (Silkies). 2, G. Amer, Perry Hill (Black Frizzled). Equal 2, W. W. Boulton (Cuckoo). *hc*, S. Probert, Lostwithiel; W. Boulton (Cuckoo). *c*, Miss E. J. N. Hawker, Tnubridge Wells (Silkies).

BANTAMS.—*Bankiva, or Sonnerat Jungle Fowl.*—*hc*, O. E. Cresswell (Hybrid Bankiva Jungle Fowl and Game Bantam).

GAME BIRDS.—*Any other variety.*—1, C. Culling, Downham (Hybrid between a Golden Cock and a common Hen Pheasant). Equal 1, A. D. Bartlett (Hybrid Wild Turkey, bred between Wild Turkey of North America and the Honduras Turkey).

GROUSE.—*Black Cock.*—1, 2, 3, and *hc* (2), J. Schroder, Christiana. *Ptarmigan.*—1, J. Schroder.

PHEASANTS.—*Japanese.*—3, P. Castang, Leadenhall Market, London. *Chinese.*—3, P. Castang. *Reeves's.*—1, E. Bartlett, Zoological Gardens, Regent's Park. *Any other variety.*—1, M. Leno, Markyate Street, Dunstable. 2, E. Bartlett (Vieillot's Pheasant). 3, Duke of Marlborough (new hybrid).

PARTRIDGES.—*English.*—1, P. Castang. *English Quail.*—1, 2, and 3, P. Castang.

The Judges were Mr. Harrison Weir and Mr. Tegetmeier.

SILVER DRAGOONS' BARS.

To add anything to Mr. Allsop's well-written letter of last week seems almost superfluous, but I must say if we are to have Silvers let us have real Silvers, and not light Blues, which I affirm the black-barred birds are. Then, again, in looking at the black bars you very rarely meet with them without a shade of brown more or less. As most fanciers will allow, "CARRIER," whoever he is, is a practical man, but looks upon the Dragoon more as a homing than a high-class fancy bird; therefore it is obvious why he should prefer the black-barred birds, since it is well known that flying men like as hard a colour as they can get.

Mr. Dunn said in a former letter that the beak of the Dragoon should measure 2 inches, which is absurd, and, moreover, without foundation. Taken from the centre of the eye to the end of the beak the length should be from 1⅛ of an inch to 1⅛ of an inch, but in a Dragoon of the true type should never exceed that length.—W. J. W. PASS, *Bury, Lancashire.*

MR. ALLSOP says, "Not one word has appeared why the precedent be quoted should not be upheld." I suppose he alludes to the judges at the places he mentions giving the prizes to brown bars. This is no argument, for no black-barred Silvers were exhibited, and therefore they were obliged to give prizes to the best of their ability; and supposing judges make an error one year, is that any reason they should always do so? Mr. Allsop asks what prize I have won with brown bars? Three are all I can count. He also says I never exhibited black bars until I purchased the second-prize Crystal Palace birds last Show, and I myself exhibited brown bars there. This is contrary to the truth, for the only pair of Silvers at the Crystal Palace which I exhibited were black bars, and were highly commended. I also exhibited before that black bars at shows too numerous to mention, including Belle Vue, Manchester, 1870, Warrington, 1871, &c.

Mr. Allsop goes on to say that he has tried this cross and that cross, and in fact has tried every possible way, but always with the same result—viz., brown bars, and then in a succeeding paragraph says he can do it quite easily. What does he mean? I do wish his statements were more correct, and not so confused. Mr. Allsop, in his controversy with Mr. Percivall in your Journal a few years ago, advocated white rumps for a Dragoon, and I can assure him he is as much in error now as he was then; white-rumped birds never win now, and no person would give more than shooting price for them.

Mr. Brent, in his book on Pigeons, says, "Silver Owls, Baldheads, &c., should have black bars." If correct in other breeds why not so in Dragoons? I have also received from most of the leading Dragoon fanciers letters concurring with my views. Dragoon classes in shows are only of comparatively recent date, and we must, therefore, look to the old flying fanciers, who distinctly state that Silver Dragoons should have black bars. Mr. Moore, well known as a fancier of Dragoons during the last twenty-three years, and who has flown them very great distances, says, "Dun bars were always discarded, and considered wastrels and only fit for the pie." Mr. Gibson, from whom I purchased the second Crystal Palace pair, has bred Dragoons for thirty years, and says black bars were always the proper colour. No doubt Mr. Gibson will state in public his experience.

My experience of breeding black-barred Silvers this year clearly proves that if properly bred they will always breed true; but if Mr. Allsop wishes to breed them he must weed out from his stud the white-rumped and the blue-rumped birds with brown bars, which he says he possesses, for unless the blue is sound and the bars a good black he will never succeed. I matched three black-barred cocks to three black-barred hens bred in the same way as I have stated in my former letter, and

they have brought-up five young ones all with black bars.—FRANK GRAHAM, *Birkenhead.*

TUMBLER PIGEONS.

I HAVE been a Tumbler fancier for a considerable number of years, and that in a double sense, as I can scarcely say whether I admire most the beauties of head, beak, shape, and carriage in the high-class Short-faced variety, or the wonderful performances of its somewhat less beautiful relation, which, for the sake of distinction and for want of a better name, I shall call the tumbling Tumbler.

As I have always been of opinion that it was impossible to obtain the very desirable end of combining in the very highest degree the properties of these two separate though closely allied breeds, I have followed out my particular hobby in a manner which seemed to me the closest possible approach to it—viz., keeping for beauty the highest class of Short-faced Almonds which do not tumble, and the young of which cannot be reared without feeders of some other breed; and for this purpose my love for tumbling birds caused me to keep birds in which this property has been developed not only to the highest known, but I may safely say to the highest possible degree. I read all the letters which appeared in the Journal on the subject of tumbling birds about two years ago, and, as far as my memory serves me, I do not think even the name of the breed was once mentioned by any of your correspondents; yet I am certain their influence in improving the quality of the tumbling birds all over the country must have been very great indeed, as I know that a very considerable number of them went even into Birmingham, which I understand claims to be the head-quarters for tumbling birds. The breed I allude to is that of the Scotch House Tumbler; and as at the time when I commenced to keep Pigeons my accommodation was such that I could not possibly fly any of my birds, I was in a manner compelled to select this breed in order to gratify my taste for performing birds, as I knew of no other that would tumble when not allowed their liberty. Many of them have also the advantage for feeders of Short-faces of being small and neat, and generally do their work of rearing young admirably.

Feeling such an amount of interest in these birds, I read with considerable interest "WILTSHIRE RECTOR'S" account of his visit to Mr. Hardy's stud of birds, and my object in now writing to you is to ask him to give fuller particulars of what he really saw, as my first impression after reading his letter was that I had been pursuing my fancy on a wrong system altogether, as I might have had tumbling Short-faced birds long ago, and these possibly of a high class. On after-reflection, however, I am not quite so sure of this, and perhaps the Rector, who is always obliging, will give information on the following points through your columns. Perhaps the information may already have been given in Mr. Hardy's own letters, but I have not them beside me now, and, besides, the Rector's well-known signature gives a weight to his communications which no private individual's possesses. In the first place, do Mr. Hardy's birds possess the properties of the Short-faced Tumbler in such a high degree that they would stand any chance of winning a prize at any show where first-rate Short-faced Tumblers were exhibited? If he thinks they would stand a fair chance anyone knows what the length of the beak from the front of the eyeball to the point will be; but if not, will he be good enough to state what their measurement is? There being not more than three-sixteenths of an inch between Short-faced birds and birds having not the slightest claim to the title, it will be necessary to be exact. What can they do in tumbling? The Rector has only given us generalities on this point, but I think the best test of the qualities of flying birds, such as the Almond he alludes to, is the moment hand of his watch. Could it do one hundred tumbles in two minutes, a number I counted one Air Tumbler do a few mornings ago, or even two hundred in four minutes and a half, which the same bird did during the same flight, its average rate being not less than forty a-minute? Were any of the Kites he alludes to good enough to tumble so close to the floor that they barely cleared their head, yet clever enough to land always on their feet, although not able to fly up to a nest if it were even a couple of feet from the ground? These are things which the birds sent by Mr. Paton, of Stewarton, to the late Mr. B. P. Brent did, and what birds in the writer's possession can now do; and as I am an advocate for fanciers to breed for extremes, I am prepared to go on as I am doing until I find that some one has either bred Short-faces possessing the tumbling property as good in other points as are now to be got without possessing it, or that tumbling birds have been bred of as high quality as what I have mentioned, and shorter in the face and rounder in the head than the Scotch House and Air Tumbler, which, I am under the impression, has not yet been accomplished.

As to Almonds tumbling, I have heard Mr. Paton, of Stewarton, say that fifteen years ago he walked ten miles to see a Tumbler he had heard of tumble, and this was as good an Air Tumbler as he ever saw (which was saying a great deal), and also as fine an Almond colour as could be desired, but he did not say it was Short-faced, and tumbling birds of the colour are certainly in this country by no means scarce. Until lately Mr. Paton possessed a Short-faced Almond cock of the very highest class, proved by his progeny having taken many prizes all over Scotland, and this bird backed regularly but never went over.—SCOTCH THISTLE.

I am always experimenting with some variety or other of Pigeon, and this year happen to be doing exactly what you are doing. My loft, unfortunately a small one, is divided by wire; on one side are High-flying Tumblers, on the other Short-faced birds of splendid strains. The enjoyment of having both classes of Tumblers before the eye at one time, and yet in separate groups, is very great. I have the delicate beauties—Almonds, Kites, and Mottles close to me, and the bolder class, yet very beautiful, also near, for how dapper, trim, and dainty-shaped is even a common Tumbler! One rule is to apply to every bird admitted among the High-flying Tumblers—he must tumble, or he shall forfeit his place in my loft. I divide Tumblers into three classes—tumbling Pigeons, High-flying Tumblers, and Short-faced Tumblers. The first are the Rollers, which depart widely from the Pigeon form, and whose tumbling being so excessive becomes rolling. These have their admirers, but I am not one of them. I have had them, but did not like them.

The second class I hold to be Tumblers proper. They ought to be neatly shaped, pearl-eyed, fly high, tumble quickly, and not fall far from the flight. Such I possessed when a boy thirty or more years ago, as a young man when in Scotland more than twenty years ago, and have had specimens at times during the whole of my residence in Wilts. Usually I have found Black Baldheads the best; they are the best I have now, then some few Red birds (especially when in Scotland), and occasionally a Buff bird. I am sorry to say I find it difficult to get up a flight, all tumbling as they ought, and should be pleased to help and be helped by other fanciers.

The third class of Tumblers are the Short-faces. Most beautiful, indeed, they are, but birds to be admired near; and they are from delicacy more birds of the aviary than of the air. But whether Almonds, Mottles, Beards, or Balds, their great beauty is undoubted, and their place among varieties "among the very first." "SCOTCH THISTLE" mentions the House Tumblers; these I am familiar with, having seen them and their performances in the lofts of my friend, Mr. Huie, of Glasgow. Of their usefulness in crossing I do not doubt, but I require in a High-flying Tumbler something different from what is to my mind the diseased tumbling of the Roller or the Scotch House Tumblers: hence I am afraid I differ widely from "SCOTCH THISTLE." I regard them as curious certainly, but not pleasing; but each man to his taste. The aërial, high-flying, moderately-tumbling Tumbler for me. What a creature of the air he is; how he enjoys himself; how frolicsome his tumbling is; his is fun and skill, not a helpless roll down; and if dark-bodied and white-winged, what a fine contrast of feathers he presents to the blue sky above him.

In regard to what I saw at Mr. Hardy's, I beg to state that the Almond cock who tumbles so well is a thoroughly good Short-faced bird, well made, and of good rich feathering. The Kites which tumble, three or four in number, are also good birds of their class apart from their tumbling. In regard "to what they can do in tumbling," they tumble well, according to my ideas, but not like Rollers. The eye is my guide, according to my notion of what is right in tumbling, not the watch. I ask only for a quick clean tumble, and not a roll. Mr. Hardy told me he had great difficulty in procuring these birds, and their number is very few in his stud, and they cost him much money. I should say, therefore, that the Short-faced Tumbler that tumbles is a very rare bird, and the further, within limits, you get from the Short-faced birds, the more the chance of their tumbling; in fact, it was always so, the Dutch Tumblers of a hundred years ago were what Rollers are now. Now, the better-shaped the bird the less likely is he to tumble. Still there are birds that please the eye as to shape, and yet fulfil the requirements of a Tumbler when flying. I have recently got back a strain of Black Baldheads which I had seven or eight years ago, and the hens tumble equally well with the cocks. They were originally from an old flying-fancier, some years since dead.

I would say in conclusion that "SCOTCH THISTLE," according to his taste, has been and is proceeding in a right course, and from thirty-four years' experience as a fancier I believe that a good Short-faced bird to tumble is an extraordinary exception.

If "SCOTCH THISTLE" has a copy of old Girton, which, being commonly met with, he probably has, he will find the two classes of Tumblers as accurately described as if written of yesterday.—WILTSHIRE RECTOR.

THE RABBITS AT THORNE.—We must congratulate the energetic Committee upon the satisfactory advance made this year in their prize list. Six distinct classes are given, and two cups also, each of two guineas' value. The Lops are divided into two classes, bucks and does, and to the best of these one cup is to be awarded. There are classes for Angora, Himalayan,

Silver-Greys, and Any other variety, irrespective of sex, and the best of these receives the other cup. The entry fee, *2s. 6d.*, is in proportion to the prizes, and the Rabbits are to be shown as single pens.

AMONG THE CLEAR JONQUES.

(*Concluded from page* 257.)

Then into the open country where, in a garden at the back of a snug little house, was a nondescript sort of building, a wooden erection with double walls filled in with sawdust. The interior was lined with cages, leaving barely space to turn round in. Every "mew" bore a small label corresponding to divers numbers in the last Crystal Palace catalogue, which had been enriched to a considerable extent by the contents of the little wooden house. One pair here I coveted, but I came away without them. If this should meet the eye of the owner of the "sawdust villa" I hope it may prick his conscience.

Then further on to where the music from the open door of every pretty cottage told how general is the fancy among the artisans, the nature of whose daily labour confines them to their own homes. Into more houses—pictures of cleanliness, tidiness, and comfort; up more lighthouse stairs and into two more breeding rooms, from which I came away with gems intended to stock the cages of the fancy eighteen thousand miles from home.

And then still further on to a breeder of thirty years' standing. He expected me, and a right cordial greeting I got from him. It was getting on towards evening when Mr. Mackley drove me to his door, and tea being on the table the condition was that we had to attend to that before seeing the birds. My connection with the Canary has introduced me to strange scenes and many people. I am indebted to him for some of my most valued friendships, and if I have endeavoured in my small way to introduce him as a pleasant and instructive companion into circles in which he was perhaps only imperfectly understood, he has amply repaid me by bringing me in contact with some I, in all probability, should never have known but for the intervention of his kindly services. I have been spoken of as an authority on the other side of the Atlantic, and published in the South Pacific, and sometimes begin to thing myself somebody. But my round of calls last week, and, not least, my visit to the humble cottage of Mr. ——, took a large per-centage of the conceit out of me. By the time I arrived at his little establishment I also arrived at the conclusion that it is just possible to be a general fancier and have a fair, general, all-round knowledge; that one may, year after year, see all the best birds of the season, and still have a deal to learn. In fact, I felt myself very small. What a wonderful thing is knowledge of any kind, be it ever so humble, and on what a pedestal stands the man who has the know! So I thought when I stood before the cages from which had issued some of the finest birds the Crystal Palace ever saw. Of course our chat was essentially bird talk, and on my asking our host if he had ever seen a well-known bird, one never beaten, the champion of his year, he pointed with some pride to one of his cages and said, "He came out of that mew," and taking down a pair, and putting them in my store cage added, "and now you have got his brother!" I got into Mr. Mackley's gig a happy man.

The members of the "Alliance" mustered in force that night at the "Woolpack." It was not club night, but the elect were to the fore in numbers. Many a foaming tankard of old Norwich ale was placed on the table, and "toasts," "sentiments," and "harmony" were the order of the day. The President of the Club, a right jovial soul withal, gave us a song in which we were requested to listen to his light guitar; and the chorus, "fal-lal-lal-la, fal-lal-lal-la, fal-lal-lal-li-day," was something immense, conveying a true idea of the capabilities of that instrument. Another gentleman who said he had won a cup in a singing match, and would produce it if desired, informed us in a rich tenor that his barque was skimming the ocean, and that he intended to conduct his business on free trade principles in defiance of the customs or excise, and announced straight from the chest, with a disregard of his larynx indicative of a true freebooter, that he was the "Smug-gler King!" A third chanted in dolorous tones how he had loved only once, but that the object of his affections having died was buried in some secluded spot, so deep that he didn't expect to see her any more. Another sang that the winds might blow as they pleased, from "sou'-sou'-northe," or any other quarter, it was a matter of indifference to him. He called upon the music to play, for he intended to start next morning by the first train to cross the ragin' main, and a roamin' go thousands of miles away beyond the bounds of our geographical knowledge. So closed another scene in my Canary life, with a general shaking of hands and good wishes from as well-meaning a set of men as I have met with in the great faucy.—W. A. Blakston.

APIARIAN NOTES.

Large *versus* Small Hives.—It is impossible to lay down a rule applicable to all localities; my own experience, however, is decidedly in favour of large hives. On first commencing bee-keeping, sixteen years ago, I had some boxes made 10 inches, and others nearly 12 inches square inside. I anticipated that the small hives would become crowded, and consequently be prepared to send out swarms earlier than the larger boxes. In this I was completely deceived, as I found, after some years' experience, that the large hives become crowded and produced drones quite as soon as the smaller boxes; and when storified, the supers over the 12-inch boxes were filled as rapidly as those over the smaller ones, the supers in each case corresponding in size with the stocks over which they were placed.

Breeding Regulated in a Great Measure by the Size and Population of the Hive.—When honey is abundant the laying of a queen of average fertility is much restricted by her inability to find empty cells into which to deposit her eggs; but in rainy bad honey seasons the population of a hive increases with most astonishing rapidity, as cells which would in ordinary circumstances be filled with honey become cradles for young bees. When the queen of a populous stock is supplied with a succession of empty brood combs in summer they are filled with eggs with marvellous and almost incredible rapidity, and so far from finding breeding restricted to the interior frames of a ten-frame Woodbury hive, I have generally found all the frames almost entirely occupied with brood during the early part of summer (unless honey has been very abundant), as well as the combs of a large nadir. If a lull occurs in the honey harvest, my supers are also generally visited by the queen in spite of contracted entrances, and most of the combs are more or less disfigured with brood, so that I have frequently been compelled to examine all the combs in the supers to excise any brood which has been deposited in them.

Autumnal Unions are Useful.—Most of my hives are devoted to storifying, but I annually raise three or four swarms to try to rear pure Italian queens. The best queens are kept and placed at the heads of stocks in the autumn, from which any inferior queens have been removed, and as I never increase my number of stock beyond very moderate limits, the bees are joined to the old stocks. To prevent all risk to the queens, they are always secured in a queen-cage before the junction of the bees is effected, and on the day after junction an inspection at once enables me to decide whether the bees are favourably disposed or otherwise towards the imprisoned queen. As I remove one of the queens before joining two stocks, I have always found the captive well received when set at liberty. Although few of the bees thus added to a stock live to do much in the way of collecting honey in the following spring, still it will be found that they have proved most beneficial to the hive by increasing the population in the winter and early spring, as the queen is thus enabled to extend the sphere of her operations, and brood is reared in proportion to the extent of comb occupied by the bees, and the old worn-out members of the community are thus succeeded by young bees who carry on the work of the hive into the summer.—J. E. B., *Wolverhampton.*

OUR LETTER BOX.

Brahma Hens Dying (*R. F.*).—There seems to be nothing in your feeding or treatment that can explain why your fowls die, and we therefore believe they have access to something that is fatal to them. It may be a fungus, some berries, or corn that has been dressed with arsenic for sowing. Cut grass is useless; fowls will not eat it. You write as though they seldom had green food; it is essential to their well-doing at this time of year. Cut some heavy sods with plenty of grass on them; you will find they eat them eagerly. Your fowls do not seem to be in a healthy natural state. They do not, according to your account, perform their functions naturally. Do you over-feed? We advise you to feed less on corn and kitchen scraps, and to give more green food. We shall be surprised if short commons do not overcome the dropsy symptoms. We expect they die very fat; that is, in the laying season, conducive to disease and death. If you can find or think of no cause for these deaths, then we believe you must attribute them to over-feeding, diseased liver, and consequent obesity. In fowls, as in human beings, there are five thousand deaths from overfeeding to one from starvation. We therefore advise you to diminish the quantity of food. If that do not succeed you must write again. If your system will make pullets lay for months without becoming broody, and without injury to their health, you have made a discovery that is worth patenting.

Chickens Deformed (*G. Slade*).—Where chickens are hatched with deformed legs and feet, it is hereditary; but it is very rare for them to be hatched so. As a rule they are hatched perfect, if the parents are so. Nothing brings on defective feet and legs so surely as improper flooring in the place where they are brought up. Brick, wood, or stone flooring, all spoil the feet of chickens. They are always cold and damp, thus causing disease and swelling of the knee-joint. From their unyielding surface they cause flat splay feet, and prevent the wholesome practice of scratching. In our experience of poultry breeding we have never seen a defect spreading through a particular run without tracing it, after close examination, to one of the parents. We believe you will do the same, and that a search among the parents will account for the deformity of the offspring. Should it be so, do away with the offender, and hurry the faulty chickens on, that they may render satisfactory service on table in the hot summer. Let them live and roost on an earthen floor.

Hens Carrying Eggs.—"In Our Letter Box (April 18), in answer to 'Ten Years Old,' it is stated that 'We do not believe in their [*i.e.*, fowls'] power to lift or carry an egg anywhere.' The other day the boy who looks after my poultry told me that he had seen a Turkey hen descend from a quantity of old wood, rails, and other lumber, under a large open shed, where

the Turkeys delight to roost at night, and where they were suspected, which has since proved to be the case, of depositing their eggs, with an egg in its beak. On the Turkey reaching the ground the egg fell from its bill and was instantly devoured. This feat was not witnessed by the boy above mentioned alone, for an older person was in the yard at the time and saw what happened. —Walter B. Arundel, *Pontefract.*"

[Our remark applied to hens of the common fowl varieties. We doubt if the Turkey could have grasped the egg unless the shell had been previously broken.]

Brahmas out of Order (*R. M.*).—You overfeed. We must tell you, and we wish to publish it to all our friends, you must alter the "bill of fare" somewhat as the weather alters. Discontinue the wheat, as a rule it is not good poultry food; discontinue the Indian meal, it is too fattening, and has not staple in it. Your fowls are fevered; the egg-passage lacks natural lubrication; all the functions of the body are impeded by excessive fat. Just as Abernethy advised the gouty patient to live on 12s. per week, and to earn them, so we advise that you withhold all food from your fowls for a week or ten days, or till they are cured, save some scanty handfuls of whole barley scattered broadcast in the grass as far as you can throw them. In many cases the "dragging" you mention is occasioned by an egg that cannot be laid from the causes mentioned above. A wing feather saturated with oil and introduced into the egg-passage will give immediate relief, and until the present appearances have passed, if they are watched and this process is adopted, you will save your birds.

Brahma Pullet Lame (*Gleaner*).—We fear it is a case of paralysis arising from injury to the back. It is not uncommon at this time of year. We can only advise you, but can hardly hope for success. Confine her in some place where she can have dry hay to sit upon, feed her sparingly on soft food. Let her have nothing to drink but strong camphor julep.

Beginning to Keep Pigeons, &c. (*R. E. H.*).—Write to our office for a copy of "The Pigeon Book," price 1s. 7*d.*, post free, and you will have the information you need. Your chickens are cramped with the damp cold weather. Give them chopped egg, and keep them in a warm place.

Jacobin Pigeon (*Patlander*).—Nothing is the matter with your bird. Give it less food.

Aviary Birds Dying (*Subscriber*).—I can assign no cause for the sudden illness and death of the inmates of the aviary; and I think that if inquiry were made of dealers in the foreign birds which are usually selected for the purpose, they would say that they are at best but very precarious stock. It is nothing unusual to see in the foreign bird department of our shows apparently healthy specimens which, without any premonitory symptoms, die in an hour or two. This mortality is more usual among the small birds than the larger specimens, such as Parrots or Parrakeets. Your treatment is everything that can be desired. No injury can possibly result from the gas apparatus, and the diet appears liberal. As your birds are of all sizes, from the Canary to the Parrakeet, would it not be well to have nest-boxes of all sizes? My Canary nest-boxes are about 3½ inches square and 2 inches deep, but I also use circular tin nests with perforated zinc bottoms and lined with felt.—W. A. Blakston.

Canaries' Throats Diseased (*J. Barker*).—You do not detail any of the symptoms. Simply to say that the disease lies principally in the throat is to give but little data from which to diagnose. The general complaint at this season of the year is that they die. Whether it be that when the pairing time comes on they are more susceptible to chills, or whether it result from overfeeding, I cannot say, but the death rate is higher at the opening of the season than at any other time. If a bird have a soft place the fuss attendant upon setting-up house seems to find it out, and it dies. That's all—it dies; from what cause I cannot pretend to say. Colds and inflammation are, however, very prevalent and frequently fatal. To a great extent we are in the dark on the subject of bird-doctoring. I am. A friend of mine, who has embarked in a homœopathic medicine-chest, swears by aconitum and belladonna, two drops of either in an ordinary drinking tin on alternate days. I myself have invested a shilling in two small phials of these tinctures, and so far these medicines seem to act favourably. But my great receipt is, Give two or three big drops of castor oil and get the bowels emptied. If the sick bird be a hen inject one or two drops, or as much as the vent will take up by its spasmodic action; then feed on bread and milk, and, above all, keep the patient in a warm place—no place better than in the fender. I may add that as much as a heaped-up teaspoonful of moist sugar added to one chopped egg will act as a mild purgative for a score of birds; but do as you may, they *will* die.—W. A. Blakston.

Lilac Flowers for Bees (*B. S. H.*).—Will any of our readers say if they are aware of the value of lilac flowers as affording honey pasturage for bees? We do not remember to have seen bees visit this shrub when in bloom.

Hive Deserted (*Charlie*).—We are not quite sure that we understand your case. Are robbers attacking your deserted hive? If so, we should say Stop-up the entrance at night and keep them out; then remove it in-doors, and keep it for a first swarm, provided the comb is clean and good. If any of it is decayed or very black cut it away, and let the bees replace it with fresh white combs.

Removing Stock Hives (*Langley*).—Bees will move very well now provided they are removed sufficiently far from their old stances to prevent their returning to them. You would be quite safe, we believe, in removing them three miles. If you must remove them now to any nearer place, we would advise you to imprison the bees the evening before their removal (taking care to have abundant ventilation), and to release them the next day, if warm, immediately after their removal, when they are in the highest state of excitement.

Driving Bees (*B. B. Alexander*).—Mr. Payden's method of driving swarms is not a new one. It will be found to answer equally without detriment to either stock or swarm if well managed—that is, if carried out faithfully according to instructions. We have worked our swarms on this plan for many years. Ants do not like gas tar or petroleum. An occasional wash of either applied to your bee-house stand will effectually drive them away.

Adding a Ligurian Queen (*Constant Subscriber*).—The consequence of uniting a Ligurian queen and a few workers to a hive of common bees would be, in all probability, the death of the whole of the strangers. Having first captured the black queen, you may destroy or otherwise dispose of her. You must then confine the Italian queen with a very few of her own bees in a queen cage, which must be inserted among the combs. After the lapse of from twenty-four to forty-eight hours the cover of the cage may be quietly withdrawn and the queen set at liberty, when she most likely will be received by her new subjects. But this is by no means quite certain of being the result of all your care. If your bees are in common hives we should advise you not to attempt to ligurianise them, as you would in all probability be doomed to disappointment.

Starving Hive (*Margin.*)—Your bees were evidently suffering from starvation, and would have been totally lost if you had not administered to their necessities at the time you discovered that there was something amiss. The combs cannot be worn-out from old age, as the hive is only four years old. You may save the stock by feeding liberally with sugar syrup—6 lbs. of sugar to 4 lbs. of water boiled for a few minutes. If the queen is living, and has not been injured by the starvation, the stock may become tolerably populous during the summer, but we should doubt its recovering sufficient strength to be able to throw off a swarm, or work a super of honey. The bees will most likely be able to renew the combs where too rotten or brittle to be used in their present state. Observe the hive during fine days, and see if the bees carry in pollen pretty freely. If they do, you need not despair of their recovery.

METEOROLOGICAL OBSERVATIONS,

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude 111 feet.

DATE. 1872. April.	A.M.				IN THE DAY.				Rain.
	Barometer at 32° and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 ft.	Shade Temperature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass	
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 24	29.514	51.2	46.5	S.W.	49.0	59.8	44.3	111.2	41.2	0.070
Th. 25	29.788	52.7	48.8	S.	49.0	62.2	42.2	109.7	38.1	0.020
Fri. 26	29.870	55.5	50.2	S.W.	49.8	63.1	44.8	103.2	40.2	0.010
Sat 27	29.735	58.2	54.5	E.	51.3	70.2	49.3	105.0	45.3	0.040
Sun 28	29.825	54.4	53.7	S.	51.9	56.1	48.2	89.8	51.0	0.020
Mo. 29	30.369	55.0	50.3	N.	50.2	66.8	36.8	106.8	31.6	—
Tu 30	30.441	58.1	55.5	E.	51.2	67.8	40.5	98.2	37.3	—
Means	29.934	55.0	51.1		50.2	63.6	44.4	103.4	41.7	0.160

REMARKS.

24th.—Warm and fine though rather windy morning, sharp shower at 2.30 P.M., and again between 3 and 4, heavy shower at 5.30 P.M., beautiful rainbow, fine evening.

25th.—Fine in early morning, shower at 10.30 A.M., sunshiny and bright afterwards, evening rather cloudy.

26th.—Beautiful morning early, rather cloudy about 7 A.M., bright and sunny afterwards, a warm and agreeable day, cloudy and beginning to rain slightly at 9 P.M.

27th.—Much warmer, beautiful day, but cloudy and heavy after 6 P.M., rain at 7 P.M.

28th.—Windy and wet morning, fine afternoon and eveuing.

29th.—Very cold in early morning, but warmed up rapidly fine in mid-day, but rather thick in the after part of the day.

30th.—Very fine in early morning, came over cloudy and thick soon after 9 A.M., close and warm, beautifully bright and sunny after 1 P.M., lovely afteruoon.

A fine week with rising barometer, and very little rain. There were thunderstorms at the mouth of the Thames on the evenings of the 25th and 26th, but they did not reach the metropolis.—G. J. Symons.

COVENT GARDEN MARKET.—May 1.

We have had a very free supply during the week both of home-grown and foreign produce; that from the Channel Islands has also been large; the staple articles are early Potatoes and the various Broccolis. Hothouse Grapes and Strawberries are now offered very freely, and prices are rapidly tending downwards. Choice qualities of old Potatoes have again advanced.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples..... ½ sieve	3	0	6	0	Melons..... each	0	0	0	0
Apricots..... doz.	0	0	0	0	Nectarines..... doz.	0	0	0	0
Cherries..... per box	4	0	7	0	Oranges..... ₱100	4	0	10	0
Chestnuts..... bushel	10	0	20	0	Peaches..... doz.	21	0	41	0
Currants..... ½ sieve	0	0	0	0	Pears, kitchen..... doz.	4	0	6	0
Black..... do.	0	0	0	0	dessert..... doz.	8	0	15	0
Figs..... doz.	15	0	0	0	Pine Apples..... lb.	6	0	10	0
Filberts..... lb.	0	6	1	0	Quinces..... doz.	0	0	0	0
Cobs.....	0	6	1	0	Raspberries..... lb.	0	0	0	0
Grapes, hothouse.... lb.	10	0	15	0	Strawberries..... ₱lb.	8	0	20	0
Gooseberries..... quart	2	0	3	0	Walnuts..... bushel	10	0	25	0
Lemons..... ₱100	7	0	10	0	ditto..... ₱100	1	0	2	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes..... doz.	4	0	6	0	Leeks..... bunch	0	2	0	0
Asparagus..... ₱100	4	0	8	0	Lettuces..... doz.	1	0	2	0
Beans, Kidney.... per 100	1	6	2	6	Mushrooms..... pottle	1	0	2	0
Broad..... bushel	0	0	0	0	Mustard & Cress..punnet	0	2	0	0
Beet, Red..... doz.	1	0	3	0	Onions..... bushel	2	0	4	0
Broccoli..... bundle	0	0	1	6	pickling..... quart	0	0	0	6
Brussels Sprouts..½ sieve	0	0	0	0	Parsley per doz. bunches	3	0	4	0
Cabbage..... doz.	1	0	1	6	Parsnips..... doz.	0	9	1	0
Capsicums..... ₱100	0	0	0	0	Peas..... quart	3	0	5	0
Carrots..... bunch	0	6	0	0	Potatoes..... bushel	4	0	5	6
Cauliflower..... doz.	2	0	6	0	Kidney..... do.	3	0	6	0
Celery..... bundle	1	6	2	0	Radishes..doz. bunches	0	6	1	0
Coleworts..doz. bunches	2	0	4	6	Rhubarb..... bundle	0	3	1	6
Cucumbers..... each	0	6	1	6	Savoys..... doz.	0	9	1	6
pickling..... doz.	0	0	0	0	Sea-kale..... basket	1	6	2	4
Endive..... doz.	2	0	0	0	Shallots..... lb.	0	4	0	0
Fennel..... bunch	0	3	0	0	Spinach..... bushel	3	0	4	0
Garlic..... lb.	0	3	0	0	Tomatoes..... doz.	3	0	6	0
Herbs..... bunch	0	3	0	0	Turnips..... bunch	0	3	0	9
Horseradish..... bundle	3	0	4	0	Vegetable Marrows..doz.	0	0	0	0

POULTRY MARKET.—May 1.

The supply of young poultry increases, and is above the average. Prices are well maintained, as, owing to the unusual cost of every other food there is a greater sale.

WEEKLY CALENDAR.

Day of Month	Day of Week.	MAY 9—15, 1872.	Average Temperature near London.			Rain in 43 years.	Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock after Sun.	Day of Year.
			Day.	Night.	Mean.	Days.	m. h.	m. h.	m. h.	m. h.	Days.	m. s.	
9	Th	Ascension Day.	62.6	39.9	51.3	19	20 af 4	33 af 7	22 5	54 af 9	2	3 46	130
10	F		62.4	40.1	51.3	21	18 4	35 7	54 5	58 10	3	3 48	131
11	S		62.4	40.9	51.6	19	16 4	37 7	33 5	55 11	4	3 50	132
12	Sun	1 Sunday after Ascension.	62.9	40.5	51.7	20	15 4	38 7	22 7	morn.	5	3 52	133
13	M	Meet. of Royal Geographical Society, 8.30 P.M.	63.5	38.8	51.1	20	13 4	40 7	20 8	39 0	6	3 53	134
14	Tu		63.2	40.3	51.7	16	12 4	42 7	25 9	13 1	7	3 52	135
15	W	Royal Horticultural Society, Fruit, Floral, and General Meeting.	64.8	40.7	52.7	15	11 4	43 7	33 10	42 1	☽	3 52	136

From observations taken near London during forty-three years, the average day temperature of the week is 63.1°; and its night temperature 40.2°. The greatest heat was 86°, on the 15th, 1833; and the lowest cold 25°, on the 15th, 1850. The greatest fall of rain was 1.14 inch.

POND MAKING.

THE formation of ponds and lakes comes more within the province of the engineer and landscape gardener than of the ordinary practitioner; it is not really a branch of gardening, yet the possession of something more than a general acquaintance with its details is desirable. I therefore offer a few practical hints derived from actual experience.

Ponds are made in two ways—either by excavation, or the construction of a dam across the lower side of a hollow. In the former case the work is of so simple a nature as to call for no special notice, further than that, if the soil is not required for any particular purpose, it is disposed of most economically and usefully around the edge of the pond, thus lessening the labour of excavation, and raising the banks at the same time.

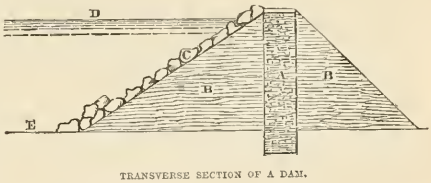
The position of an artificial pond should be influenced by the purpose it is intended to serve. If it is for storing water for cultural purposes, then it is highly important it should be either very near to the plants to which it is to be applied, or else in a more elevated position, whence the water may be distributed through pipes and hose with great expedition and economy. When, however, the water is required for ornamental rather than for useful purposes, the choice of a position requires the exercise of sound judgment as well as good taste, so that the water may be so disposed as to contribute to the beauty of the scenery, in which it is certain to form a prominent object, while every natural feature or inequality of the ground is turned to advantage.

In making a pond, there should be ample provision for letting off surplus waters resulting from winter rains. Let there be outlets proportionate in size to the inflow, or rather in excess of it. The outlets consist of a sluice or penstock for emptying the pond, and a pipe or cascade for the overflow. The penstock consists of a wooden tube rather longer than the width of the dam at its base, open at the outer end, and closed with a stout sliding door at the end inside the pond. For the door to fit as closely as possible it slides in a groove cut in the bottom, the sides, and through the top of the tube; it is attached to a shaft passing through a beam elevated upon two side posts slightly above the water line. A small shaft is readily raised with a lever passed through a hole in the centre of and near its top; but when the pond is deep, and a large sluice is used, the shaft is raised by means of a cog wheel and spindle. A tube of 2-inch beech planks, and of an internal diameter of 9 inches, answers admirably for very large ponds, the pressure of the water causing it to pass through with surprising speed. This simple apparatus is very durable, and as efficient as the more costly one of iron which is sometimes used.

The cascade should be of ample size to afford free passage for the waters of a flood, and yet of such a form as to look well with the slighter flow of summer; it is advisable, therefore, not to attempt too much, but to make the passage narrow and deep rather than broad and shallow.

The arrangement of the materials forming the bed or bottom of the cascade depends very much on individual taste; sometimes the water passes over steps of dressed stone arranged with much precision and nicety, at others it tumbles in wild confusion among masses of rock securely bedded in mortar. Whatever form is adopted, the sides should be high enough to prevent any washing of the bank, and every part must be strong and compact in order to resist the pressure, as well as the action of the water when in motion.

The height of the dam should be at least 1 foot above the required level of the water, the width of the base bearing a correct proportion to the height, but with this difference, that the outer slope is made at an angle of 45°, and the inner slope at an angle of 32°, so that the vertical pressure of the water upon this elongated slope may contribute very materially to the strength of the dam. The philosophy of this will be more clear if it is remembered that the specific gravity of common water is 1000 (that is to say, a cubic foot of water weighs 1000 ounces avoirdupois), while that of Oak timber is only 925. The accompanying transverse section clearly illustrates the formation of a dam.



TRANSVERSE SECTION OF A DAM.

A. Puddled clay.
B. Ordinary soil.
C. Rock.
D. Surface of water.
E. Pond bottom.

The puddled clay is continued 3 feet below the level of the pond bottom, to prevent any escape of water under the dam.

It is sometimes advised to have the puddled clay next the water, but I very much prefer having it in the centre, in which position it is best calculated to strengthen the bank, and is altogether screened from the sun. This is important, for if any part of the surface of a mass of puddled clay is exposed to the drying influence of the sun or air, cracks of a serious nature occur, and if the water obtains a passage through the smallest crevice it may prove fatal to the entire structure. The puddling is a part of the work on which much care and labour should be bestowed. The chief thing to guard against is the excessive use of water. Caution and watchfulness are especially necessary when the work is done by the cubic yard, there being a tendency on the part of most labourers to apply water till the clay can be worked with

spades as if it were mortar; instead of which a slight moistening should suffice, so that, by ramming and treading, the clay may be kneaded into a solid tough mass, just wet enough for cohesion and no more. Heavy rammers should not be used; more and better work can be done with a light handy tool 4 inches in diameter than with a ponderous one requiring both hands to lift it.

The cost of the work depends upon the nearness of the soil; if the clay bed is within 20 yards of the dam, it can be excavated, wheeled, and puddled at 9*d.* per cubic yard. This price is slightly in excess of what is frequently given, but it is a just and fair rate for which the puddling can be thoroughly well done. The other soil should, if possible, be taken from the sides or bottom of the pond; for the price of this part of the work it will suffice to refer your readers to the excellent and trustworthy tables given in the "Gardeners' Year-Book." I may state, however, that whatever price is paid per cubic yard, it should be clearly understood to include the excavation and wheeling of the soil, and dressing the slopes to the proper angle. It is advisable to have 6 inches of soil upon the top of the bank over the puddling, and if turf can be had for the top and outside of the bank it will add to its stability, especially at first, when the fresh-moved soil is liable to be washed away by any overflow that may occur.

The inner slope is covered with a layer of rough stone, not merely for strength, but to preserve it from being worn away by the ripple of the water, which would be the case if the sides or banks were left unguarded. In soil of a loose or sandy nature there is frequently a difficulty in keeping in the water, and it becomes necessary to cover the bottom and sides with concrete or clay; in such cases, if there is any difficulty in obtaining clay, it should be remembered that ordinary soil if not very porous may be wrought into a puddle that will hold water almost as well as the toughest clay.—Edward Luckhurst.

THUNBERGIA HARRISI CULTURE.

I think it is nearly twelve months ago that the Rev. W. F. Radclyffe first drew attention in your pages to the extraordinary beauties and decorative qualities of this Thunbergia. I had at that time a young thrifty plant growing in the stove in a small pot, and to which I intended to pay some extra attention, in order to prove to demonstration the truth of Mr. Radclyffe's report of it. I did so, and the result is thoroughly satisfactory. I find his picture was not too highly coloured, for beyond the Luculia I have not a plant that has been more admired, not only for its profusion of Gloxinia-like lilac-coloured flowers, but also for its long-continued blooming. With me it was in flower before last Christmas, and has so continued ever since, and yet the plant is only growing in a No. 12-sized pot. What size it would attain when planted out I do not know, but I would like to hear from those who have grown it in that way, as I think of giving the plant a good position in a new house when opportunity offers. Thus far I have proved it to be a grand plant for a stove.

According to the "Cottage Gardeners' Dictionary," Thunbergia Harrisi was introduced into this country from the East Indies about eighteen years ago; but I find it is not much known to cultivators, and I consider it a pity that such an ornamental plant should be thus left in the background. To those who want to know more about it, I may say that it is an evergreen climber, with long, narrow, dark green leaves. It is of vigorous growth, and mostly flowers at the extremities of the shoots. The flower-shoot elongates considerably until it is nearly or quite a foot in length, and forms flower-buds as it grows. The flowers are, in most instances, twice as large as those of a Gloxinia, and of nearly the same shape. The plant at all times requires partial shade; the north side of a span-roofed house is a good place. It requires plenty of syringing while growing, but when in bloom no water must touch the delicate-tinted flowers, as it discolours them. According to my experience it requires a substantial soil; my plant is growing in heavy turfy loam of considerable richness, and night soil twelve months old, mixed with earth and lime. The proportion of the latter should be about a double handful to the gallon of loam; no sand is added, but the loam is used rough, and the manure sifted into very fine portions before being mixed with the remainder. Quantities of water slightly warmed are given during growth.

After flowering, the plant may rest for a month or two, and should then be pruned according to the strength of its growth, and started in bottom heat if possible, though I do not consider this absolutely necessary, my plant having had none at all after its first potting. To those who do not grow this Thunbergia I say, Do so if it is possible to find a suitable place. Last autumn I raised half a dozen plants, and not having a place ready for them, I kept them in 4-inch pots, trained to some small stakes, the whole not more than 18 inches high, and these little plants have been blooming for the last two months.—Thomas Record.

MRS. PINCE'S BLACK MUSCAT VINE.

The merits of Mrs. Pince Grape have been so much lauded of late, that it is needless for me to add my testimony. I agree with all that has been said as to the quality of the Grape—a fact which so far as I am aware has never been disputed, but still the ugly fact remains that under certain circumstances it is a shy bearer. I know some who, on this account, have discarded it altogether, and others who gave up the idea of planting it. It is not enough to know that a few "great guns" have succeeded in growing it successfully. How does it behave among the masses? On the answer to this question will depend the making or the marring of its popularity; hitherto, I believe, the weight of the evidence seems to be on the adverse side. I have not been able to gather from the remarks of your correspondents that their success is owing to any peculiar treatment, so that I conclude it must be due to one of two things, either that their general treatment of Vines is so high that they cannot fail with any, or to local circumstances.

My own experience of Mrs. Pince Grape is not very great. I planted a weak cane three years ago; it is now a fine strong cane, having ripened well last year. It was cut down to about 5 feet last autumn, and this spring broke very strongly all over. One half of the cane is last year's wood, the other half being the preceding summer's; the shoots on this portion were cut back on the ordinary spur system, and the shoots from these spurs do not show a single bunch worth leaving; on last year's wood every shoot shows from one to three fine bunches. I have previously observed this peculiarity elsewhere; I have therefore formed the resolution how to treat it for the future, which will be on the rod system. Rightly or wrongly, I have come to the conclusion that under ordinary circumstances it will not succeed so well on the close-spur system, and that this may to a great extent be the cause of frequent failures.—A Yorkey.

MARÉCHAL NIEL ROSE.

In April, 1870, as soon as the walls had been raised sufficiently high to receive the framework, I planted a Maréchal Niel Rose at the gable end of a small span-roofed greenhouse, 12 feet by 8 feet, which I use as a porch or entrance to the larger span-roofed house, which is divided evenly by a glass partition, one-half being used as a cool stove, the other as a vinery. From this one Rose tree I cut in April and May, 1871, fifty-nine full-blown Roses, and up to this date (April 30th), including fifteen cut to-day, 195 full-blown Roses, leaving on the tree about fifty more yet to be gathered. I enclose two of them in a box; they are under the average size of the blooms cut.—[They were good, though rather small, specimens.—Eds.]

Before planting the Rose I had a hole dug 3 feet square, and had the soil thrown out to the depth of about 3 feet; at the bottom of the hole I placed brickbats and stones to the depth of nearly 1 foot, upon this some fresh-cut sods grass side downwards, and then planted the Rose tree in some tolerably stiff fibrous loam from the road side. This had been previously mixed with some old hotbed manure, and well turned and mixed.

For some time I despaired of the Rose growing, as it suffered much from exposure to all weather, the house not being completed and glazed until late in the month of June. However, in the autumn of the same year the tree began to show signs of vigorous growth, and, selecting three of the strongest shoots, I trained them up towards the roof on three iron rods or wires I had previously had fixed at 3 inches from the back. The centre shoot I trained under the ridge of the roof to the front of the house, and turning the two side shoots right and left over the doors leading to the other houses, allowed all three to grow without any check, and they continued green the whole winter, not dropping a single leaf.

In January I cut the shoots back to about two-thirds of their length, leaving each some 10 feet long. A few weeks after pruning, the buds at each leaf began to swell, and from each a

Rose, or bunch of Roses, came, from which I cut, as before stated, in the months of April and May fifty-nine full-blown Roses. In the course of the summer and autumn of 1871 the tree made still more vigorous growth, threatening to overrun the whole roof of my little house. I accordingly had strong wires fixed from back to front at intervals of about 18 inches, and at a distance of 8 or 10 inches from the glass; making choice of the most vigorous shoots, I trained one on each rod, and by November nearly every rod was covered. The remaining shoots I disposed of amongst my friends for budding. I shortened every shoot in January, and the result has been 195 blooms cut and about fifty left to perfect. Besides the shoots trained to the roof of the porch, the tree put up one very vigorous shoot from the base, which I let through into the stove house, and it made a growth of about 20 feet. I cut about 7 feet off this, and it is now showing flower, and promises to keep me in Roses for some time after the other part shall have ceased flowering.—A Constant Reader, *Horncastle*.

BEST HOT-WATER APPARATUS

AT THE ROYAL HORTICULTURAL SOCIETY'S BIRMINGHAM EXHIBITION.

In the language of the "code," I now offer a few words upon "the best hot-water apparatus," or rather upon some of the means by which the solution of this interesting problem may be arrived at. Now, the practical rendering of this clause is, as I interpret it, the best boiler, a circumstance which can only be realised by carrying out a properly-organised series of tests.

Accepting this version as being the correct one, I proceed to submit, rather as a basis for future deliberations than otherwise, a few practical suggestions necessary to be borne in mind when framing the regulations by which a public boiler trial should be conducted. I wish, however, to preface my remarks by citing a few facts, mainly to show the utter impracticability of endeavouring to satisfactorily carry out this important undertaking within the prescribed limits of the duration of the Show; and in doing so permit me to add that these are not mere theoretical conclusions, but practical evidence collected from close and careful observations of many working examples, and therefore I hold that the very nature of my authority constitutes it one of the safest upon which to rely.

First, then, comes the fact that no iron boiler, whether wrought or cast, displays its real working capabilities until the same has been in operation for hours, and I should not exaggerate if I said days, after fixing; therefore, if the proposed trial of boilers is to continue but for one or two hours, I ask how the real merits of each boiler are to be correctly recorded?

Secondly, The quantity of fuel consumed during the first day or two to produce certain results, is not a correct idea of the future daily consumption required to maintain the same. How, then, can a verdict be pronounced upon the very important point of "economy of fuel?"

Thirdly, With reference to "night stokering," by what process of reasoning can this be adjudicated upon if each boiler is to be in operation for one or two hours only?

Fourthly, "Economy of labour" is an attribute claimed by more than one maker of boilers for his pet production, and I ask whether a period of less than twenty-four hours' work will yield any practical proof of the daily labour each respective boiler requires?

Fifthly, Boilers "foul"—some more quickly than others. It is only a question of degree, but this is just the thing which vitally affects their maintenance of working power, consumption of fuel, and labour in attendance. It is not the trial of an hour or two's duration that will test this.

Lastly, In so short a time I avow it is impossible for a boiler to demonstrate the command it possesses over its work, and the niceties to which it can be regulated by producing first a slow circulation and rising to a great rapidity in cases of emergency.

Now, in the face of these statements I venture to submit that a trial to be of any positive value or real benefit, must necessarily be extended over a period far exceeding that assigned to the forthcoming meeting at Birmingham, and if it be worth undertaking at all, it is worth doing well.

I now proceed to detail the mode in which I am of opinion the trial should be carried out. Neither the temperature of the water in, say, 1000 feet of pipe, nor the temperature of a conservatory or room, would be of any avail for this purpose, on account of the influence from the external temperature to which these would be subjected. I propose, therefore, to provide an iron tank holding not less than 1500 gallons, fitted with top, manhole, and plate all well secured; and that it should be fitted upon a platform elevated 10 feet from the ground, so as to avoid the necessity of sinking a stokehole. This tank to be enveloped in a wood casing composed of inch deal, leaving a cavity of 3 inches on all sides to receive a packing of sawdust, so as to effectually exclude all influence of external temperature. Pierce the tank where most convenient at top, and insert a kind of bottom-heat thermometer about from 3 to 4 feet long, having its bulb 2 feet in the water, with the index exposed, which should be read at stated intervals, and all its variations recorded by properly appointed authorities.

Within the tank, and worked from the top, should be placed a kind of plunger to be worked to and fro, at stated periods, for the purpose of thoroughly incorporating the water, and producing a uniform temperature throughout the tank. An air-pipe to be fixed at the top, and a small tap at the side, about 4 inches down, the former to allow of expansion, and the latter to show the quantity of water in the tank. Bolt on the flow and return nozzles, and extend the same through the wood casing, leaving all other connections to be made by each competitor. The tank would thus be ready to receive the water and for operations to be commenced. The distance between boiler and tank should be not less than 130 feet, and if 150 feet so much the better. Taking it at the former measurement, the top of each boiler should be fixed at a level not exceeding 20 inches below the bottom of tank, which would give a rise of about 1½ inch in 10 feet to the flow pipe. The fall of the return pipe need not necessarily be identical with that of the flow, so as to render them parallel throughout. Opinions differ upon the advantage of such an arrangement, and therefore I would leave it optional with the competitors to adopt whatever plan they thought best. Every competitor should cause his own boiler to be fixed under his personal superintendence, or that of his representative, for which he should be responsible; also one or the other of them should be allowed to work the boiler during the entire trial, no results to be recorded by any interested party except for their own private use and information, not for circulation.

After having clearly defined by rules and regulations the relative position and level which each boiler shall occupy in relation to the tank, the size, number, and forms of the circulating or connecting pipes between the boiler and the tank should be left to the decision of the competitor, each competitor being at liberty to remove those used for any former trial, and substitute for them any special arrangement of his own, so as to meet the requirements of his boiler.

For obvious reasons, however, it would be necessary that each competitor should at the time of making his entry lodge with the authorities a proper plan and specification, setting forth in the clearest terms his proposed plan of fixing the flow and return pipes, also the number and size of each, together with the level of the return pipe, and from this statement and plan no deviation under any circumstances should be permitted at the time of preparing for the trial.

Such is an outline of my suggestions, which, of course, requires to be filled up with details, a work not very difficult to do if the Society will but declare itself in favour of a properly-organised boiler trial.—S.

ROYAL HORTICULTURAL SOCIETY'S SPECIAL PRIZES AT THE BIRMINGHAM SHOW.

I have just read the letter from "C. C. E." in your number of last week, and in answer to his queries would suggest a very simple definition as to what are to be considered vegetables and what fruits—viz., that the former are those eaten at dinner, and the latter those used at dessert. Preserves, of course, not to be taken into consideration.—Scio.

Your correspondent "C. C. E." is quite right in bringing this subject under notice. Best of All Pea, unless by mere chance, will not be represented, and the Messrs. Sutton would do well to omit it from the collection. Again, in Messrs. Carter's twenty-four dishes, the two new Onions, only sent out in January, will be in no condition for show purposes if grown, as per schedule, outside. The local prizes are good and intelligible, and I am sure will be well represented.—R. G., *Stamford*.

Watts' Excelsior Broccoli.—We have had some of this very superior strain of the Self-protecting Broccoli, and can

say that it is when cooked delicate in flavour, very firm yet tender, and the enveloping leaves are so crowded and close that even the inner ones can be eaten like Sea-kale.

THE CULTURE OF SARRACENIAS, OR SIDE-SADDLE FLOWERS.

[In our notice of the last meeting of the Royal Horticultural Society will be found this passage—"Mr. Baines, gardener to H. Micholls, Esq., Southgate, had a cultural commendation for two marvellous specimens of Sarracenia Drummondi alba and S. flava, standing 4½ to 5 feet high from the ground." Two such specimens of Sarracenia were perhaps never seen before. All the accounts we have ever had of these two species in their native habitats inform us that the ordinary height to which they grow is 2 feet. This, then, is a striking instance of the art of a skilful cultivator ontdoing Nature in a way which can only be described, in the words of our report, as "marvellous." Mr. Baines has been so good as to furnish us with the details of his practice in the cultivation of these interesting plants in the following communication.—Eds.]

From the experience gained through a lengthened cultural acquaintance with these plants I find it quite as necessary to give some negative as well as positive instructions on their culture, and all the more so as I find there is an idea prevalent amongst those who attempt their cultivation that, from the fact of their inhabiting the swamps of their native country, it is necessary, in order to grow them well, to imitate Nature by saturating their roots in stagnant water contained in pans set under the pots. I find this prevents their ever acquiring the amount of healthy roots essential to the full development of the plant. This remark more especially applies to the scarcest and most difficult kind to grow, S. Drummondi alba, a variety which never roots so freely as the others. I wish to impress this upon all who take an interest in their culture—that upon the amount of healthy roots they possess hangs the secret of their ability to make fine pitchers.

All the kinds except S. Drummondi alba and Drummondi rubra require to be repotted every year early in February, removing all the old material, and replacing it with fresh soil. Use two-thirds of the best fibrous peat that can be obtained, and one-third of chopped sphagnum, with a liberal admixture of small crocks and a little silver sand. Do not attempt anything like hard potting; let the material lie quite loosely in the pots, so that the water may pass through as freely as if it were a sieve. Treat the varieties of Drummondi in an exactly similar manner, only pot them in August instead of the early part of the year. The best place to grow them in is the moist corner of a house where no air is admitted in the immediate neighbourhood of where they stand. Place them on a rough unpainted shelf that will absorb the water given them at the roots once a-day during their season of growth, which extends more or less from the end of February to the end of October. After that time watering twice a-week will be sufficient. Never syringe overhead, it only breaks down the pitchers by its weight when it gets in them, and renders them so soft as to be of much shorter duration.

Nothing can be more erroneous than the extremes of temperature we often hear recommended for growing them. The first cultural treatise I ever read upon them represented Drummondi as luxuriating in from 80° to 100° during the growing season. On the contrary, S. purpurea is recommended to be grown in a cold frame. They will exist under both these conditions. Last July, after our large mass of S. purpurea had finished its growth it was placed in a late vinery, and allowed to remain there throughout the autumn until after Christmas, up to which time the Grapes were hanging. A little fire was kept in for them, so as to maintain the temperature up to 40°. The pitchers they have made since are not more than half their usual size, and not nearly so large as those formed by small plants kept in the usual temperature of 50° at night, with a rise of 5° or 10° by day during their season of rest; 60° by night, with 65° to 75° by day from the time they commence growing at the end of February to the autumn; also plenty of moisture in the atmosphere, with a very thin shade in sunny weather.

The Sarracenias are subject to brown scale and thrips. The former must be carefully removed with a sponge, the latter kept under by fumigation.

The following are the dimensions of the two plants I exhibited before the Floral Committee on May 1st.:—S. Drummondi alba, fifty pitchers, from 2 feet to 3 feet 8 inches long; S. flava, sixty pitchers, from 1 foot 6 inches to 3 feet long. The lids on the largest pitchers are 6½ inches across.—T. Baines, *Southgate*.

WATER TANKS.

I have always stated that if the rains are husbanded no garden or house need be without a good supply of water. Some time ago I described how a large brick-manufacturing firm, by setting apart an acre of ground, with the surface hardened and sloping to a pond in the centre, had by the sacrifice of that acre of ground saved themselves more than £100 in the cartage of water. I have another strong evidence in my mind at present. A gentleman has gone to great expense in re-arranging, adding to, and consolidating his farm buildings, and as these are all spouted, the pond reservoirs show the change. That gentleman told me the other day, not what he expected to realise from his new barns and cattle-sheds, though I know well that these will pay, but that, taking into consideration the expense of carting water from a distance, he felt confident, even as respects water alone, the buildings would return fully 3 per cent. for the outlay.

When tanks for rain water are of large size, no materials are better than brick and Roman or Portland cement. If I had any preference at all, it would be for the dark instead of the light. During the twelvemonth I have heard a mournful account of some score of these tanks that would not hold water. "The bricks, instead of holding the water, seemed to part with it like a squeezed sponge." I knew all about that, and gave a warning respecting it. I have seen brick tanks that were of no more use for holding water than a pond of open marly loam. The conditions of success are simple, but they must be attended to. The chief of these are, that every brick must be soaked in water until every air-bubble escapes before it is laid in the cement, and then, before the exposed ends of the bricks get dry, a casing of the cement should cover them. Thus treated no water will ever escape, unless from the action of the surrounding ground the structure should become cracked and fissured. Without such precautions, building a tank with dry bricks is little or no better than making up the sides with clay. I can easily see in the causes of failure that the chief one is using bricks in a comparatively dry state. Under such circumstances bricks and cement are thrown away.

For a moderate-sized tank, say 14 feet in diameter, and 20 to 25 feet in depth, the circular or egg-shaped is the most secure; but in this case the covering at the apex should be left so far open that the air may act on the water, otherwise, from the absorption of the cement, it will become too hard to suit tender plants. In such tanks all below ground there will be no trouble with frost; but for this, I should prefer square or parallelogram tanks, with the surface wholly exposed, as then the water is always clear, and as soft and pure as when it comes from the rain-clouds. For all gardening purposes I greatly prefer the latter, but the walls and the ground round them must be protected from frost from November until April, or the walls must suffer from expansion and contraction; and the smallest crack from such neglect, if it is not much more than a hair's breadth, will soon cause the water to disperse.

Again I say that the round, or rather egg-shaped, tank underground is the safest; but after all, the rain water in the open tank is the best, only the sides and the ground round it should be protected in winter, and in some cases even in summer, as whatever interferes with the ground, in the way of expansion and contraction, will more or less interfere with the solidity of the walls. This is especially the case when the surrounding ground is of a strong clayey nature. In wet weather it swells and heaves, and thus acts on the walls. In dry hot weather it contracts, and leaves the walls to bear the full weight of the water. A little short litter round the sides of such a tank in summer, say from 3 to 5 feet in width, would prevent contraction.

If I were making more of these open square or oblong tanks, I would not build the walls perpendicularly or upright, but bevel them outwards a little, and thus give them a better chance of resisting all such changes of expansion and contraction in the surrounding ground. With the advantage referred to of an open tank there is this disadvantage—that leaves and other matters will blow into it, and thus the water, though clear, may be anything but sweet before the end of the

summer. In such open parallelogram tanks, say 10 or 12 feet wide and 6 feet deep, if the length is more than 15 feet I would place a wall across from side to side in the middle, with 2 arches near the base, as a security against the walls bending inwards. Some soils, as clay, are more liable to influence walls than loams or lighter soils. Where the tank is not to be seen, nothing beats a round, or rather egg-shaped tank underground. Where clearness of water is an object, it is well to pass the rain water through two filters.—R. Fish.

ROYAL BOTANIC SOCIETY'S SPRING SHOW.

The third Spring Show, held yesterday, was of more limited extent than its two predecessors, and of a more miscellaneous character; still it was a neat little exhibition, and, after all, its greatest drawback was the fitfulness of the weather—now sunshine, now showers, and chilly withal.

Of Azaleas, the only exhibitors in the nurserymen's class were Messrs. Lane, of Berkhampstead, who sent some of the specimens shown at Kensington in the previous week; in that for amateurs, Mr. Hill, gardener to H. Taylor, Esq., Avenue Road, St. John's Wood, was first with some of the excellent plants which he exhibited at the same place. Mr. Wheeler, gardener to Sir F. H. Goldsmid, Bart., was second. He also sent a collection of fine-foliaged plants, as Palms, Dracænas, Alocasia metallica, &c., likewise a group of flowering plants.

Messrs. Paul & Son, Cheshunt, contributed a fine group of nine Roses in pots; and Messrs. Veitch a more numerous one, also in excellent bloom, in the miscellaneous class; likewise a collection of Japanese Maples, and another of new plants. In the latter certificates were given to Adiantum amabile, Croton lacteum, Epidendrum pseud-Epidendrum, green, with a fringed reddish orange lip; E. syringothyrsus, and Acer polymorphum dissectum. Along with these were Dracæna Youngii and Gravesia bertolonoides noticed in previous reports. Mr. Croucher, gardener to J. Peacock, Esq., Hammersmith, sent a group of scarce Agaves, of which A. Peacockii had a certificate.

From Mr. Williams, of Holloway, came a miscellaneous group, including fine specimens of Todea superba, Anthurium Scherzerianum, Hippeastrums, Chorozemas, and Azaleas. Along with these were several new plants, as Rhopala elegantissima, Agave Roezliana, Zamia cycadifolia, and Macrozamia McKenzii, all of which received certificates. Mr. Williams likewise sent baskets of Purple and Pink Queen Stocks, very double, free-flowering dwarf varieties. A certificate was awarded for the former. Messrs. Dobson and Mr. James, of Isleworth, contributed well-flowered Calceolarias, the latter also sending a group of these, Azaleas, and Cattleya Mossiæ in good bloom. Mr. W. Paul sent fine stands of Maréchal Niel and other Roses, and white-flowered white-variegated Pelargoniums, of which Guinevre had a certificate. Lord Bacon, salmon rose shading off to white, had a similar award.

In a collection of new plants from Messrs. E. G. Henderson, certificates were bestowed on hybrid Ivy-leaved Pelargonium Emperor, with large rosy crimson flowers, the foliage, too, being much larger than in the ordinary Ivy-leaf; on Pelargonium elegantissimum, with very small yellow-variegated leaves, and of dwarf habit; on Hedera conglomerata; and Pimelea Hendersoni alba. Along with these were several Orchids, Caladiums, and other plants. Mr. Ware, Hale Farm Nurseries, Tottenham, sent a collection of Funkias; certificates were given to F. japonica aurea with large golden-tinged leaves, and F. Fortunei with very distinct glaucous foliage; also for Iris iberica Perryana, differing from I. iberica in having no yellow markings. Mr. Ware likewise exhibited groups of hardy bulbous plants and Alpines.

Messrs. Ivery & Son, Dorking, had certificates for Hedera conglomerata, Polystichum angulare proliferum Henleyæ, and P. a. confluens variegatum; and Messrs. Carter & Co. for Dracæna lentiginosa. A pretty white-variegated variety of Solanum Capsicastrum was also shown by the same firm. Messrs. Paul and Son exhibited good specimens of Primula japonica, also Spiræa japonica aurea with yellow-veined leaves, a neat-looking variegated plant. Mr. Porter, gardener to Mrs. Benham, Isleworth, had a certificate for a large-flowered strong-growing Pelargonium called Prince Charlie, suitable for growing against walls and as standards; and Messrs. Lane, who exhibited a large group of Chinese and other Azaleas, had a certificate for A. mollis Alphonse Lavallée with orange-salmon flowers.

CULTURE OF POT VINES.

Pot Vines are under better control, they can be grown in less space, and if the Vines have been properly prepared, they can be relied upon to produce a heavier and a more certain crop than permanent Vines. The only difficulty is, that every one has not the means of growing the plants on for two years before forcing them—for a crop in March we shall say; and it seems to have occurred to but few nurserymen that it would be worth their while to produce a really good article for this purpose. We have tried frequently to buy well-ripened two-year-old pot Vines, innocent of bottom heat, from the trade, but have rarely succeeded in getting anything like fit subjects to operate upon. After November the market is glutted with "strong pot Vines," warranted to force early or late; but the shrewd cultivator who wants plants to start in November will make his market if he can before then. Plants for forcing early must be brown and ripe in July at the latest; and this is the time to buy if we want to be sure of the article.

Now that late Grapes can be furnished easily and in fair condition till the beginning of April, a very moderate-sized house of pot Vines might be made to carry the supply on until June or July, which would obviate the necessity of starting the earliest house of permanent Vines before the middle of January or beginning of February.

A suitable structure for growing and fruiting pot Vines in a systematic way would be the first consideration. A lean-to house or pit, 7 or 8 feet wide, with a bed along the front and a path along the back, would perhaps be as economical a structure as could be devised for such a purpose, as it could be utilised for Melons or Cucumbers after the Grapes were cut. Such a house would accommodate one row of pot Vines set along the front and trained up under the sashes. The length such a house ought to be would depend upon the demand; but as pot Vines can be fruited successfully, trained a most 15 inches apart, and as each plant might in a general way be calculated to yield six bunches, or perhaps 4 or 5 lbs. each, it will be seen that a moderate-sized house would give a very good return, espcially when compared to the crops generally seen on old debilitated permanent Vines, even allowing that a division similarly fitted up would be required to grow a successional lot of pot Vines, for we only recommend buying the plants when they cannot be grown at home.

In this paper it is more our object to advocate pot-culture generally for early work than to describe the routine of culture in such cases. Fifteen years ago, or more, we were impressed with the utility of the pot system by seeing a splendid house of pot Vines at Dalkeith in March and April, and have had a hankering to put the plan into practice in a constant way ever since.

Plants that are intended to fruit in March and April require to be grown two years. The first year they should be started from eyes in the usual way, and grown on liberally in 10-inch pots through the season. When the wood is ripe, but before the leaves are fallen, the plants should be shifted into pots a size larger—reducing the balls just sufficiently to disentangle the points of the roots. In November the canes should be cut down to one or two eyes; and by the beginning of January the plants may be again started and pushed on with the same liberal treatment, and in a brisk temperature, which, if all goes well, should give canes 8 feet long, and ripe to the top by the end of June, when they should be set out of doors behind a north wall, with a few leaves packed round the pots to save the roots from injury. What pruning the plants need should be done in August, even though the leaves are not fallen off entirely, and by November they may be introduced into heat. After this, saving that they require strict attention in watering, the ordinary vinery treatment is all that is required till the fruit is ripe in March.—J. Simpson, *Wortley* (in *The Gardener*).

PORTRAITS OF PLANTS, FLOWERS, and FRUITS.

Arisæma speciosum. *Nat. ord.*, Aroideæ. *Linn. arr.*, Monœcia Polyandria.—Sent to Kew from the Himalayas. It is a dioecious plant, and the females have as yet not been fertilised. Tuber is as large as a potato. Spathe 5 to 6 inches long, the point recurved, deep purple, striped with white inside, greenish or paler purple outside. Spadix with a flexuous filiform tip nearly 20 inches long.—(*Bot. Mag.*, *t.* 5964.)

Veronica parvifolia *var.* angustifolia. *Nat. ord.*, Scrophulariaceæ. *Linn. arr.*, Diandria Monogynia.—A New Zealand shrub, small, and smooth. Branches slender, erect, and red-brown, as are the peduncle and rachis of the racemes. Flowers pale lilac, and spreading.—(*Ibid.*, *t.* 5965.)

Restrepia elegans. *Nat. ord.*, Orchidaceæ. *Linn. arr.*, Gynandria Monogynia.—A native of Carracas. Stems tufted, epiphytic, clothed with pale scarious scales distichously arranged. Dorsal sepal erect, produced in a straight tail, which is yellow and clubbed at the tip, white, streaked with purple; lateral sepals connate, yellow, spotted with purple. Lip edged

with red. Column slender, white, streaked with purple.—(*Ibid.*, *t.* 5966.)

Saxifraga Strachevi. *Nat. ord.*, Saxifragaceæ. *Linn. arr.*, Decandria Digynia.—A native of the Himalaya Mountains. Leaves closely sheathing at the base, with orbicular stipular sheaths. Flowering stem from 4 to 8 inches high, drooping, glandular, pubescent. Flowers pink.—(*Ibid.*, *t.* 5967.)

Dendrobium amethystoglossum. *Nat. ord.*, Orchidaceæ. *Linn. arr.*, Gynandria Monogynia.—Stems 2 to 3 feet high, 1 inch in diameter, dirty green, tapering at the apex. Leaves not seen. Racemes very many and dense-flowered, the flowers imbricating before full expansion. Flowers ivory white, except the amythestine purple end of the limb of the lip. Column short, the sides produced upwards into two short toothed wings.—(*Ibid.*, *t.* 5968.)

Fritillaria tulipifolia. *Nat. ord.*, Liliaceæ. *Linn. arr.*, Hexandria Monogynia.—A native of the Caucasus. Stem 4 to 6 inches high, leafless below, clothed at the base with appressed sheaths. Leaves three or four on each stem, nerveless, pale green. Flower nodding and tulip-shaped. Perianth segments oblong, rusty brown, purple within; the outer ones glaucous blue, streaked with purple outside; the inner ones with a broad glaucous blue band down the back.—(*Ibid.*, *t.* 5969.)

Show Pelargoniums.—"*Pompey* (Foster). A very large flower, of rich colour and fine form; orange lower petals, maroon top, with orange margin; large white eye. *Achievement* (Foster). A pleasing, large, light variety of great merit; lilac-rose lower petals, maroon spot on top, large white centre; very dissimilar."—(*Florist and Pomologist*, 3 s., vol. v., p. 97.)

PRUNING THE SPURS OF APPLES AND PEARS.

The primary object of all the trouble we take with fruit trees is to make them bear fruit. The long pruning of the branches of the framework, and indeed the non-pruning of them, bear witness to this fact. We force the young branch to throw out short spurs for about a third of their length. These are our first and best spurs, since they are situated directly upon a branch, and can be protected if necessary.

But do these kinds of productions, such as are obtained by the present method of treating fruit trees, remain always the same, and do they yield fruit continually without growing beyond the foremost fruit-bearing spurs? No, unfortunately. Some, and they are not the smallest number, bear at the base of the spurs one or several smaller spurs, of which the farthest-off first come into bearing, but others, such as the Winter Bon Chrétien and Beurré Diel, have only a long spur terminated by a fruit-bud, all beneath which is bare and hard, as may be seen on reference to *fig.* 1. The greater number of these spurs springing directly from the branch or shoots do not produce fresh spurs but vigorous young shoots, which in the ordinary mode of management we are obliged to pinch when they have about three leaves, in the same way as the shoots nearer the stem, in order to make the spurs produce anew.

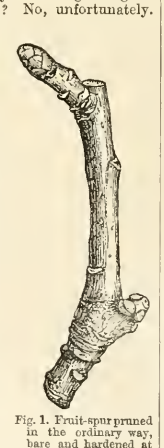


Fig. 1. Fruit-spur pruned in the ordinary way, bare and hardened at its base.

This is a serious error. We are unable to preserve that which we have first of all obtained—that is to say, spurs consisting of soft tissues, and which should remain as such without ever resuming the hard and woody character of the shoots. From this error it also results that the sap is diverted into other channels to the detriment of the crop, and really also at the expense of the growth of the framework of the tree. By the mode of proceeding which I am about to describe this drawback is done away with, for a spur, as soon as it has become fruitful, will remain so without apparent lengthening or becoming unfruitful. Whilst permitting the sap to increase the size of the tree and invigorate the shoots, which otherwise would be almost deprived of nourishment and would not bear.

This simple and certain practice consists in watching the fruit-spurs which have flowered, or which bear fruit at the usual time when pinching is performed. Every young shoot which is developed on each of these must not be pinched in the ordinary manner, but cut back level with its origin on the spur (see *figs.* 2 and 3) when it is at least 6 inches long. But

Fig. 2. Pear-spur pruned on Delaville's system.

Fig. 3. Apple-spur pruned on Delaville's system.

this concentrates the sap, which, being prevented from ascending, presses upon the wrinkled base of the spur, and starts into life a number of fruit-buds. On the Apple tree (*fig.* 3) these young shoots become fruit-buds before the sap ceases to flow, and they expand in the following spring. On the Pear tree these buds most frequently do not bear until the second year, but in both the result is the same—fruits in abundance every year, owing to the preservation of the soft tissue at the base of the spurs, and the constant bringing-back of the spurs to the main branches of the tree. The regular distribution of the sap to all parts of the tree, large fruit, and the simplicity of the practice, such are, in my opinion, the advantages of this mode of pruning.—(Delaville, in *Revue d'Horticole.*)

ROOM AND TABLE DECORATION.

No fête seems now to be complete without the aid of flowers and plants, which occupy a far more prominent position than the massive plate under which tables used to groan in former days. No one of taste can, I think, find fault with the change, provided it be kept within due limits; but there may be as great vulgarity in the use of flowers as in the use of plate, and there is a danger of running into excess. Talking the other day with one whose good taste is undisputed, he said, "I was vice-chairman at a dinner the other day, and I never saw the chairman the whole of the evening." All this is a mistake, and I entirely coincide with a recent letter in a contemporary, that great care will be needed in adjudicating for the liberal prizes offered on the 15th inst. I have been led to make these remarks from having had a peep at the decorations provided for a Master's dinner of the Drapers' Company at their splendid hall in Throgmorton Street on the 25th ult. To all dwellers in the City these halls are well known, but I confess their grandeur and beauty of ornamentation, rich carving, &c., were quite a surprise, and I was glad, if for nothing more, to see them at their best.

There are two points, I think, to be borne in mind on the subject of ornamenting rooms and staircases—that the plants used be good and suitable, and that colour be toned off by a considerable quantity of green. I remember a notable case of something of this kind where the greater number of plants employed were scarlet Geraniums and Fuchsias, and yet a very high price was placed on the work done. Now, if the thing is to be done at all it should be done well, and there are so many good plants which are suitable for employment in such cases, and which do not suffer much from it, that I think the use of rubbish is unpardonable. There was not on the occasion above alluded to a very large scope for this kind of work. On entering the door there was a tolerably wide recess on each side, and in this Mr. Turner, for it was he who had the arrangement, had placed some very handsome plants of Azaleas in full bloom, interspersed with Palms, Dracænas, &c., while on the stairs single pots of Azaleas, Geraniums, &c., were carefully arranged, the pots being concealed simply by tissue paper of pale shade of green. I was particularly struck with the fresh character of the plants used, for often one sees dusty and ill-conditioned ones that have done duty very often. I think I should have liked to have seen a few taller Palms placed amongst the other plants, for at night nothing has a finer effect than their graceful forms and dark green foliage. In the furnishing of the table Mr. Turner did not

resort to any large and overpowering stands of flowers, but simply to the use of low-sized plants, and a few small stands of flowers; indeed, the latter did not afford much opportunity for anything very elaborate, being too narrow; in fact, I questioned how far the sitting-room was sufficient, independently of anything else. The whole effect was attained by the use of simple means and good materials. There was no obscuring of the view, nothing that required immense labour or enormous expense.—D., *Deal*.

CONOCLINIUM IANTHINUM FOR TABLE DECORATION.

Those who know the value of a Hydrangea on a single stem and in a small pot will be able to form an idea of the service that a batch of Conocliniums would render when grown on the same principle. They have been very useful here this season for the dinner-table; and standing in the conservatory amongst Primulas, were admired by all who saw them, the flower being more than twice the size of any on the old plants.

Their cultivation was as follows:—In April I took off some young cuttings from an old plant, and inserted each in a thumb pot in a mixture of peat, loam, and sand; the pots were then placed in a dung-frame and shaded for a few days; when rooted they were removed into the stove, and as soon as they had filled their pots with roots, were shifted into 4½-inch pots, using two parts peat, one part loam, with a sprinkling of silver sand. No dung of any kind was used, as short stubby plants were the object; but as soon as the flower began to show itself manure water was given, weak for a few days, afterwards pretty strong, and every time they needed water; the result was, plants about 9 inches high, with large dark green leaves from the very base, crowned with a flower twice the size of the pot. Care must be taken to keep the syringe off as soon as the plant is in flower, or they will not last long.—(W. N., in *The Gardener*.)

SOME PREDATORY INSECTS OF OUR GARDENS.

No. 29.

A worthy friend of mine, who regards the theory of the evolution of life as propounded by modern philosophers with very intense admiration, partly, I think, just because it is novel and daring, and partly because "it explains everything so beautifully, you know," employs himself occasionally in speculating with reference to certain species, as to what they were, and what they are likely to become hereafter. So being desirous to perplex him, I proposed for his consideration the rather anomalous creatures belonging to the aphis tribe, and asked, "What has an aphis been, and what is it going to be, say in Anno Domini 10,000?" My friend suggests the following as a theory, which if a little extravagant is not much more so than some others set afloat by learned professors with a half alphabet of honorary letters after their names. It occurred to him, so he says, in connection with two of the familiar names applied to these insects. They are sometimes called plant lice; well, they probably were in one period of their history actually lice, and they still retain wingless generations and great facility of increase under peculiar circumstances. But aphides are by-and-by to be—well! that's a greater leap by far—cattle, actual quadrupeds. They are now occasionally known as aphis-cows, and serve as milch cattle to ants. What's to prevent them from going higher up? Certainly at present in their dimensions aphides and actual cattle differ considerably, yet what is size after all? The frog, as we all know, in the old fable tried to swell himself up to the proportions of the ox. He didn't succeed certainly, because it was too great a thing to accomplish in one generation; had he been more moderate in his attempt, and tried to become the size of a rat, his posterity might have advanced by stages until frogs became oxen; and why not aphides frogs, *en route* to something superior?

Seriously, however, the aphis tribe is so great an annoyance and positive injury to the gardener, that he would not care much what transformation they underwent, nor whether they ascended or degraded in the scale of creation, so long as they ceased to trouble him. How delightful to read that in some regions of South America these species do not occur! Yet the naturalist tells us that their place is filled up by other insects, which are, presumably, quite as troublesome as our "blight;" more so indeed, their activity being greater through the influence exerted by a higher temperature.

Some of the fairest flowers of the parterre are among the greatest sufferers from the attacks of these pertinacious and most prolific insects. The "queen of the garden," the Rose, sacred to scriptural, historic, and poetic memories, is almost invariably frequented by aphides. Several species of aphis in different seasons resort to Roses, for there are some that do not seem to be confined to any species or order of plants, but transfer themselves from one to another as the insect likes them. Others there are which select their plant or tree, and adhere to it most faithfully. The Rose has its speciality of this sort, which we name Aphis Rosæ, and which in some one of its stages is to be found upon the bushes all the year round. In the winter, certainly, it is not so easily discoverable, for the species is then in the egg state, and according to the best observers that is the only season when aphis eggs are to be detected. These eggs, which are black, and, of course, diminutive in size, are very firmly attached to the twigs or boughs, and Loudon has remarked that it is a pity gardeners do not attempt to operate upon these, and thus extinguish the germs of the countless broods of spring and summer. He believes that the application of water rather below the boiling point would kill the eggs, and he asserts its use after the leaves have fallen is not injurious to the Rose, or to perennials generally. Many, however, would feel some reluctance in venturing upon what might seem a hazardous experiment; and in addition to the hot water, it is stated that strong, tepid, tobacco water and a lather of soft soap are effectual. Certain of the preparations so freely advertised as destructive to "plant lice" may also be as fatal to them if administered to the eggs which are to give them birth. At all events, if left alone, the young brood of aphides are hastened into life by the first mild weather we have towards the end of the winter, and appear on the twigs in March, or even in February. It has been asserted that the cold winds of spring have a pernicious influence upon aphides, but as far as my own observations go, I have not perceived that they lessen the number of these insects, unless accompanied or preceded by heavy rains. The first brood, however, do evidently feed-up more slowly than those which follow, and, becoming adult in April, give place to the next generation. It has been stated by some writers on the subject, that there are two broods in May, June, and July, and in August and September three, making-up in all the number of ten; but it is at least doubtful whether the succession is thus regular in most years, depending as it does upon fluctuations of the weather and upon the supply of nutriment obtained from the plants. Thus Mr. Walker, an unquestionable authority, writes as follows (and his remarks are as applicable to Aphis Rosæ as to other species):—"The change in the atmosphere, of which the gloom called a blight is the result, is the cause directly, and through its effects on vegetation hastens the appearance and increases the number of the winged aphides. When the aphides have for food a plentiful supply of sap they generally continue in the wingless state and multiply most rapidly. When the atmosphere checks the supply, the winged state begins to abound."

Twice in the year, then, at least do aphides occur with wings, these mingling in the most amicable manner with the wingless hosts of all sizes, busily engaged in pumping up sap with their haustella. These implements, let it be noted, are hollow tubes with pointed tips, so that they serve admirably for piercing the leaves or twigs, and also extracting the sap, which is the sole nutriment of aphides. The very entertaining author of the "Episodes of Insect Life," gives what may be called a pen-and-ink portrait of the aphides we see upon the Rose in May and June. "These winged creatures are the aristocracy of the multitude, and no inelegant specimens of Nature's liliputian workmanship. Each has a plump shining body of deep bright green spotted at the sides with black, long slender legs inclining to reddish, and, like a bamboo reed, marked at every joint with black or darkest brown. The head, shoulders, and long jointed antennæ are also chiefly black, as well as two diverging spikelets proceeding from the back, while a pair of ample wings much longer than the body rise exactly over it."

But it is not the case with aphides, as with some other insects; the possession of wings is not a distinction of age or sex. There is a spring or early summer flight of these—an actual flight, for they do migrate on some days from one place to another, though the journeys they make are short—yet these are not males and females, but only of the latter sex. The generations which have preceded, and which will follow the winged generation, are as truly mature, according to their peculiar nature, and, being of the female sex, produce juvenile

aphides, which are born alive. A most curious fact this, and one that I can only lightly touch upon here—namely, that in the same species the females are at one time oviparous and at another viviparous. All through the season of vegetable growth and active life, brood after brood of aphides is ushered into existence without the intervention of any male insects, and without passing through the egg condition. It is only when autumn has fairly commenced to strip the trees that we observe on the Rose bushes individuals with bodies of orange or brown, and endowed with wings of a deeper tint than their female companions. These are male aphides, and the result of their life is the deposit of a batch of eggs, which carry on the species in safety to another season. It is only the change of temperature which has brought these forth, and during exceptionally mild winters a species of aphis has been noticed to continue viviparous, and under artificial warmth in a greenhouse for several years.

The subject of aphis life has engaged the attention of some of the most distinguished naturalists here and on the Continent, but, for all that, we cannot state that it has been satisfactorily investigated. With the best intentions, most have investigated their structure and habits in order to support some ingenious theory. A number of successive generations of aphides appear, amongst which no male insects are found—that is a fact unquestionable, and how is it to be explained? A considerable sensation was occasioned a few years since by the discoveries of M. Balbiani, who from his dissections, was led to conclude that during the time they are viviparous, aphides are true hermaphrodites, performing the functions of both sexes in female guise. Shortly after M. Meczikow, and Professor Claparide, who had been investigating the matter about the same time, wrote expressing their conviction that M. Balbiani was wrong both in his conclusions and in his seeming discoveries; nor do I think that the "hermaphrodite" supposition has gained much support in England.

A few words may be added to this paper concerning the migration of aphides, on one point where popular beliefs have gone wrong. They can only travel long distances, if travel they do, in one of two ways—by means of their own wings, or by being carried along by winds, or in the clouds, as some persons think. That they do not journey by their own power of flight to any great distance is self-evident, nor is it likely at all that atmospheric agencies transmit them from one district to another. I have heard gardeners in our suburbs west of London, lamenting over the fact that the green or black blight of eastern London travelled with the easterly winds in search of "fresh fields and pastures new," but I am quite convinced that this is only imagination.—J. R. S. C.

VEGETABLE AND ANIMAL LIFE.

What though we may be unable to explain what life is, it may still be proper to examine into what is termed the physical basis of life. It is well to bear in mind, however, that notwithstanding much has been written on these subjects, the knowledge of hidden forces, motion or life, soul and spirit, is no better elucidated now than it was centuries ago. So that we can with propriety adopt the Scripture language, found in Hebrews xi. 3.—"Through faith we understand that the worlds were framed by the word of God, so that things which are seen were not made of things which do appear." This is the positive fact, and science cannot in truth gainsay it.

Let us briefly consider what science knows of the so-called essential elements of life—carbon, hydrogen, oxygen, and nitrogen.

Carbon—a pure combustible base of the varieties of charcoal and other carbonaceous matter. Charcoal is burned wood, or burned bone, or leather, both previously organised, whether from the vegetable or animal creation. What is very remarkable, however, is that the diamond, being a mineral, is pure carbon in crystallised form. As an elementary substance, carbon combines with oxygen in two proportions, forming carbonic acid and carbonic oxide. Carbonic acid consists of 6 carbon × 16 oxygen = 22. This extinguishes flame and suffocates animals; as found in wells and mines it is called choke damp. Limestone, marble, and chalk contain it. Carbonic oxide is composed of 6 carbon × 8 oxygen = 14. It is fatal to animals and extinguishes flame, but it burns in contact with air, and forms carbonic acid.

We will now briefly consider oxygen, so efficient in forming acid compounds, as well as eight-ninths of the weight of water, one-fifth of the weight of the atmosphere, and is present (often to the amount of from forty to fifty per cent.) in nearly all the mineral bodies of which the crust of the globe is composed, including the soil.

The magnetic properties of the atmosphere are said to be almost exclusively due to the oxygen contained in it; modified by its action by solar heat, it occupies a high position among electro-negative bodies. It is just as likely that electricity is associated with the oxygen in the air, which—for instance when brought under the rubber of an electric machine—separates it by the oxygen acting upon the amalgam, and liberates the electricity, which, having a greater affinity for the metallic conductors than for the air, is conveyed to the Leyden jar, and confined until discharged. Electricity is only a modification of creative force, and is more nearly related to life than the ponderable elements upon which it acts through the influence of solar light or otherwise. Though the sun's rays are not fire, yet bring them to a focus by a lens, and fire is a result in contact with combustible bodies.

Hydrogen is only known in its gaseous form, formerly called inflammable air, and considered identical with the matter of heat. Pure hydrogen is sixteen times lighter than oxygen; it burns in contact with air with a pale flame, and when mixed with three or four times its volume of air (or half its volume in pure oxygen) and inflamed, it burns rapidly, and in the latter case with violent explosion. The only product of this combustion is water. How marvellous! and yet hydrogen is not absorbed by water, and animals soon die when confined in it. So we come to consider water, which was itself considered an element by the older chemists, but we have just seen that it is a compound of hydrogen and oxygen, as supposed by Watt and Cavendish, as far back as A.D. 1786 and 1787, and since satisfactorily demonstrated. Thus water is in fact an oxide of hydrogen, scientifically considered. But water is seldom purely such; there are mechanical, gaseous, mineral, and organic impurities in it; changing in its descent as pure rain-water, it becomes charged with the gases of the atmosphere, such as oxygen, nitrogen, and carbonic acid, and during a thunder storm an appreciable quantity of nitrate of ammonia produced by electric discharges through moist air; and it is a source of fertility to vegetation, further augmented by its holding in solution small quantities of mineral salts, and generally of organic matter.

The remaining element to be considered is nitrogen, also a simple gaseous body, forming a constituent of the atmosphere and of nitric acid; this being also antagonistic to life, is hence also called azote. It is, nevertheless, an important component of many organic substances, and is remarkable as one of the fulminating compounds of gold, silver, and mercury, to say nothing of gunpowder—a compound of sulphur, nitre, and carbon. Thus we learn that these elements are mostly deleterious to life, and yet essential to support it.

Thus we learn that vegetables produce azotised substances, the fatty matters—starch, gum, and sugar—which are consumed and form the food of animals, and from this consumption is produced carbonic acid, water, and ammonia, which latter product is in turn decomposed by vegetation, and in that decomposition oxygen is evolved, so essential to the animal, in return for the carbonic-acid product given out by the animal, and so essential to vegetation.—(*American Gardener's Monthly.*)

The Garden of the Acclimatisation Society of Paris, ruined during the siege, is about to be reopened. A great part of the damage has been repaired, the ornamental and horticultural parts have been replaced, and there are already many animals in the park.—(*Nature.*)

DINNER-TABLE DECORATIONS BY GASLIGHT AT THE BIRMINGHAM SHOW.

I wish to draw attention to this class in the schedule of prizes, in which it stands as follows:—

"Class 145.—Dinner-table decorations by gaslight. Dinner table completely laid out for fourteen persons, and arranged so as to show the best means of utilising fruit and flowers in its adornment. The exhibits will be judged and exhibited by gaslight. Open prizes, £20, £15, £10, and £7."

I find some misapprehension exists as to the time when these dinner-table displays will be exhibited—the words "by gaslight" having led some to suppose that they are to be seen in

the evening only. This is erroneous. They will be exhibited in the daytime in a tent specially constructed so as to exclude the daylight, and which will be lighted with gas, the object being to show what plants and flowers are best adapted for decoration by artificial light, the kind of light by means of which such decorations are usually seen in this country. The regulations for this class will be found on pages 7 and 8 of the schedule, copies of which I shall be happy to send on application. Much interest has been excited respecting this class, and I have no doubt but that it will prove one of the most interesting in the Exhibition. Entries close for it on Wednesday the 28th inst. —Edward W. Badger, *Local Hon. Sec., Midland Counties Herald Office, Birmingham.*

BEAUDESERT.

The Seat of the Marquis of Anglesey.

Near the centre of the county of Stafford is a large tract of upland moor called Cannock Chase, consisting principally of a succession of hills and valleys, the former mostly covered with Heath, and the latter with coarse herbage. Few trees occur; here and there a few stunted Scotch Firs, Birches, and Oaks grow on the dry ground, and there is a scattering of Willow and Alder in some of the damp valleys. There is no great amount of naked rock, and although the soil is in places of a black peaty character, much of it is a hungry yellow gravel. The hills are not so precipitous as many in Derbyshire and Scotland, but the elevation is great. Whortleberries grow very extensively in the dry black peaty districts, but less plentifully where the soil approaches a yellowish gravel. Heath is more widely spread, and I believe the Foxglove also abounds in places, but the Bog Myrtle or Sweet Gale of the Scottish morasses is not so plentiful as in the far north. Such is Cannock Chase, a district which seems to bid defiance to the plough or spade, but the districts adjoining it have doubtless been all reclaimed from it at some time; the gravel-covered fields that now produce fair returns of Oats and green crops were no doubt little less inviting than the waste now before us. On the south-eastern side of Cannock Chase is the noble mansion of Beaudesert with its park and grounds.

We can readily believe that Beaudesert, "The beautiful Wilderness," deserved that name when bestowed, for it is well situated, and was part of the forest of Cannock when Henry II., seven centuries since, bestowed it on the church of St. Chad. Walter, Bishop of Lichfield, and his successors, made it their residence, but it seems to have been resumed by the Crown in the reign of Henry VIII., and given by him to one of the most deserving of his officials, William Paget, created "Baron Paget of Beaudesert" by Edward VI., and it has remained the property of his descendants. The present occupant is Sir Thomas Abdy, but it is thought probable that the Marquis of Anglesey will return to it at a period not very distant.

The mansion occupies an elevated position in a park of great size and beauty. The approach from Rugeley is on the ascent, until the park is entered at an elevated point, from whence the mansion is just seen. The road leads through the park by a series of easy curves, passing up and down hill until, after a mile and a half, it reaches the carriage front. The road, although much improved by cutting and levelling, is nevertheless what postboys would call "a heavy one," but for those who admire the works of Nature, a walking pace would not be too slow, as each summit or valley reveals fresh beauties. Oak trees of several centuries old are growing in all directions, occasionally crowning an eminence, but more generally occupying a position midway up the sides of a hill. On one side we find a breadth of short inviting-looking turf, while Fern 6 feet high is waving in the wind on the other, and the deep green of the valleys indicates there is no lack of moisture there. The park is well watered; owing to its elevated position there is no large stream, but plenty of springs, and now and then a brook. The hills, which are all rounded and cut into every form by valleys or ravines, get higher and higher as you advance beyond the mansion, the highest ground or summit being a spot called the Castle Hill, where a Roman encampment had once been. This spot is upwards of 1000 feet above the sea level, and it is said that from it one can see into nine counties. It is like wise interesting to the antiquarian, for a sort of dry ditch or earthwork fortification surrounds it, enclosing some sixty acres or more in the form of an irregular oval. There are few or no trees upon it, but there are the foundations and some other remains of a building which was probably a religious house.

The mansion has but little claim to external beauty, having, I believe, been added to and altered at various times; its large size gives it a commanding appearance, while the magnificent suites of rooms inside are not often equalled. One room was upwards of 100 feet long, and of proportionate width. Amongst other things which the visitor is shown are some relics of the celebrated military marquis; the boots he wore at Waterloo when he received the wound which deprived him of a leg, and other mementoes have all an interest, as well as the elaborate works of art collected here.

Passing out of the front door which opens into the park, we find a piece of moderately level ground immediately in front, which, however, speedily descends into a narrow valley to rise again to a less elevation. At a short distance from the house, on the brow of the first descent, is a fine spring of water issuing from a piece of rudely carved stonework called the Lion's Mouth. I believe there is some legend in connection with this copious stream, but I cannot narrate it. The water I found was colder than spring water usually is. Returning to the mansion, to which the offices and stabling are united on the western side (the carriage entrance being to the north), I entered from that side the pleasure grounds proper, and found that I had undertaken a very difficult task to explain to the general readers of a gardening Journal the peculiarities of this fine place.

The pleasure grounds extend to the east, south, and west of the mansion—the north, as has been explained, is open to the park—and present a greater diversity of surface than most places, so much so that there is 150 feet difference in elevation between the high ground and the low. In general the ground may be said to rise to the south, but at the south-west a deep declivity ends in a piece of ornamental water very well introduced, while on the opposite side the ground rises again abruptly. Immediately adjoining the house were some terraces with flights of steps, Yew hedges, and an embroidered Box garden, with some glass corridors and an elevated balcony extending eastward from the mansion. The rest of the ground assumes a more natural condition, a retaining wall or ha-ha bounding it on the east and part of the south sides, but by skilfully planted shrubs this boundary was not seen, and appeared either to unite with the park or adjoining wood. A straight walk leading through the grounds at a place clear of trees and shrubs had a set of flower-beds on each side of it. The beds were circles and oblongs alternately, and at the time of my visit (August) were gay with bedding plants, all doing well excepting Calceolarias, which here, as in several other places, were not as they ought to be. The shrubs consisted mostly of Rhododendrons, of which there were some noble groups of the older kinds, while the more choice sorts of later years had also lately been planted in suitable places and were doing well. On the lawn there were also some good specimen Conifers, while noble Elms, Sycamores, Beeches, and Oaks occurred at every turning, but more especially at the outside of the dressed grounds, where some excellent timber occupied a portion of the park almost sufficiently close together to be called a wood, but cattle had access to it. Azaleas, Hollies, and other shrubs were also abundant in the dressed grounds. The common Laurel had suffered much the preceding winter; the Portugal Laurel proved itself much hardier.

On leaving the dressed grounds, and passing through a wood of fine old trees standing rather thinly on the ground, I found that the Rhododendron is very extensively grown, in places encroaching on the neatly formed paths that intersect this wood. Azaleas and Hollies were also plentiful, and the former appeared to have flowered well. This path leads to the farm, also to the private chapel. Returning by another route I passed the quarries whence the stone used in building the house was most likely obtained. It is of a pale brown colour with a tinge of red, and it appears to be a good and enduring sandstone. Taking another glance at the pleasure grounds I discovered that what appeared to be glass corridors are glass-roofed plant houses, one or more being heated to act as a stove. The others were filled with the usual plants of the season, the whole looking well. A considerable part of the mansion is covered with Ivy. The stable-yard, containing an extensive block of buildings in the form of a half-circle, is well screened from view by trees and the ever-recurring Rhododendrons, some of the latter on the precipitous sides of a hill completely filling in a chasm.

The kitchen garden is nearly a mile from the mansion, and in one of the lowest valleys in the middle of the park. An excellent wall surrounds it, enclosing rather more than four

acres, exclusive of a slip on the south side, bounded by a hedge on the park side. The valley stretches east and west, and the ground inclines both from the north and south to the centre, but slopes most from the north. A wall extends across the middle of the ground, but without uniting with the outside walls; and against it the forcing houses are placed on one side, and the sheds and offices on the other. A broad walk or roadway passes through the garden, in front of the sheds, to large doors in the outer walls. The soil is perhaps rather too sandy, and some vegetables suffer from a dry summer like that of 1870; but most root crops thrive remarkably well, and at the time of my visit an excellent yield of Potatoes of the following kinds were being dug up:—old Ashleaf and Rivers's Royal Ashleaf, so much alike that it was impossible to distinguish a difference; Ratford Kidney, a second early, good, although cooking a little yellow; Milky White, also good; Lapstone Kidney, very poor and unprofitable; Gloucester Kidney, better. Amongst newer kinds Bresee's Kin[illegible] of the Earlies was not satisfactory. Bresee's Prolific yielded 236 lbs., and Bresee's Peerless 277 lbs. each, from 5 lbs. of seed, and promised well. Paterson's Victoria, York Regent, and Dalmahoy, grown to a much larger extent in the fields, were all good, and promised to maintain their ground against the new comers. Some other kinds were also grown. Carrots, Parsnips, and other things were also good, but the Cabbage tribe seemed to suffer from the want of lime in the soil. The season had been a disastrous one for fruit. The late spring frosts told with greater severity in this garden than in any other I know. The fact of its being surrounded by high ground would seem to favour if not invite frosts; and as a proof of the great liability to this, I was told the thermometer on the morning of the day I was there (August 22nd) had been down as low as 33°, and I am not sure that there had not been a frost every month during 1870. Gardening is, therefore, carried on under difficulties, as the season is necessarily short for such crops as Scarlet Runners and Dwarf Kidney Beans.

Even Potatoes suffer in the spring. The winter frosts are very severe. The Peach trees on the walls were in better condition than I have often seen trees in more favoured gardens, showing that climate rather than soil was the cause of there being no crop. There had been an excellent crop of Peaches in the houses. The Pines also looked well, and I believe there was some good fruit cut last season. The Grapes were not so good, the Vines being worn-out and wanting renewing. The houses were being renovated, the Vine borders were in course of formation, and other alterations being carried on. Coals can be obtained at less than a couple of miles away for 5s. per ton, and this circumstance makes a wonderful difference in forcing as compared with the south. A large basin or pond of water occupied a position in front of the house, supplying all the requirements for garden purposes, and a considerable stream or brook that runs down the valley was carried underneath the surface, the surplus water of the pond alluded to, derived from another source, running into this brook.

As the kitchen garden is in the middle of the park I will now take a glance at the latter. A brief inspection is sufficient to show that it is both large and much varied. The verdure of the smooth grass land immediately adjoining the house changes into the waving Fern as we progress westward, and the latter creeps up very near to the kitchen garden. The home park contains the deer, of which there is a fine head. In the outer park Fern predominates almost exclusively, and trees of great size and age are scattered over both. Perhaps the more ancient-looking trees are in the outer park; one of the Oaks is upwards of 31 feet in circumference at 5 feet from the ground, and others of nearly equal size are met with in various places. Now and then there is a scraggy-topped Holly; but these, the old people say, have been dying fast out the last forty or fifty years. The soil on which these venerable old Oaks are growing is singular, and may be best judged of by its herbage. Fern abounds almost everywhere, but just around the largest and finest trees grass alone would seem to grow, although Fern approaches as far as the extremities of the boughs. How is this? We all know Fern does not object to shade—rather enjoys it than not. The question then arises, Is the soil different where these venerable monarchs of a bygone age still erect their heads, or has the frequenting of their shade by sheep and other animals driven the Fern away? This is a question well worth inquiring into. There were a few Birches, still fewer Scotch Firs, the Hollies are said to be disappearing fast; and although one Yew is mentioned as being very near to the large Oak, its fellows are few and wide apart, and the scarcity of young trees would indicate that at a period not far distant this extensive tract will be destitute

of trees, leaving the Fern alone to luxuriate; and without wishing to depreciate it in the least, I hope means will be taken to prevent this.

Sir T. Abdy, Bart., the present tenant, is doing much to keep the extensive premises in good order, and in improving them by judicious planting.—J. Robson.

SELECT ALOCASIAS.

The genus Alocasia has deservedly become very popular, and although less brilliant in colour than their near allies the Caladiums, they possess many advantages, and are charming subjects for the stove of an amateur, as well as that of the professional cultivator, or for exhibition purposes. The majority of the Alocasias are not deciduous, and hence their ornamental leaves and distinct characters are enjoyable during the dull winter months. This is a decided advantage, as they

Alocasia intermedia.

contrast beautifully with such flowers as Poinsettias, Euphorbias, Gardenias, Eucharis, and other denizens of the hothouse which display their charms at that ungenial season. Another recommendation that Alocasias possess is the easy manner in which they may be grown, which, combined with the leathery texture of the leaves of most of the species, renders them well adapted for the decoration of the drawing-room or the dinner-table, always providing there is no gas in the rooms. While upon the subject of gas, I must impress upon the minds of my amateur readers that it is utterly impossible to maintain the health of plants for any considerable length of time in apartments which are illuminated with gas.

The majority of these plants may be grown in very small pots, and thus the amateur may remove them from the plant house to the drawing-room, plunge them in an ornamental pot or vase, and enjoy their beauties in such positions for a long time. A week, or perhaps two, will be sufficient for each plant to stand in such positions, but if five or six plants are kept (and if they are in small pots they will not take up much space), their admirers can always have one or two in their apartments during the winter months.

The following species are all very beautiful, thoroughly distinct in appearance, and adapted for the purpose to which I have before alluded.

A. intermedia.—For the illustration of this really superb plant the readers of the Journal are indebted to the Messrs. Veitch & Sons, of Chelsea, in whose establishment it originated; it is a hybrid between A. longiloba and A. Veitchii,

and is, perhaps, more ornamental than any other kind in cultivation. The stems attain a height of from 1 to 3 feet (the latter size only when well grown); their leafstalks are beautifully mottled, and banded with green and metallic white. The blade of the leaf varies from 1 to 3 feet in length, and its long ears render it very conspicuous. The upper surface is of a deep green, suffused and veined with silvery white, whilst the back of the leaf is tinged with dull purple.

A. METALLICA.—This is a plant of dwarfer habit than that previously named, usually growing from 12 to 18 inches high. The leaves are of great substance, obtusely ovate in shape, and of a uniform deep bronzy hue, which gives it a most distinct appearance. It is a native of Borneo.

A. LOWII.—A species from the same island as A. metallica, producing cordate-sagittate leaves, which are bright green on the upper side, ribbed with ivory white, the reverse of the leaf being deep purple. It is a most ornamental species.

A. GIGANTEA.—In some respects this plant resembles A. intermedia; it may, however, be readily distinguished by the long, spreading, ear-like lobes of its large sagittate leaves, which are deep green above, veined with white and deep slate colour below.

A. SEDENI.—This is another beautiful hybrid, produced in the establishment of Messrs. Veitch by crossing A. metallica with A. Lowii; and when I say it combines the colours and characters of both its parents, my readers will readily understand that it is at once a handsome plant and a valuable addition to our stove ornaments.

A. ZEBRINA.—This a grand species, a larger grower than any of those previously named, and therefore not so easily accommodated by those amateurs having but limited space; nevertheless, those who can find room for it will be amply repaid by its majestic character. The blade of the leaf is large, broadly sagittate, and full; deep, shining green in colour. The leaves are supported upon stout footstalks, which are pale green and beautifully striped with numerous zig-zag bands or belts of deep green. It is a native of the Philippines.

There are several other species which form splendid objects in the stove, but are not included here, as my object has been to name only those which will bear removal to the dwelling-house. The soil I prefer for these plants is a mixture of peat, thoroughly good decomposed manure, some sphagnum moss, a little loam, and some sharp silver sand. Let the pots be well drained during the growing season, give an abundance of water, and there will be no difficulty in the amateur providing himself or herself with elegant specimens of Alocasias for the winter decoration of apartments.—EXPERTO CREDE.

WORK FOR THE WEEK.

KITCHEN GARDEN.

As the principal summer crops are now planted, attention will be requisite to keep up a proper succession of vegetables. To do this requires some forethought, and it is scarcely possible to lay down rules for guidance, considering that so many circumstances are involved. The wetness or dryness of particular localities, the texture and the capacity of soils for resisting drought, are, however, the principal which require consideration in keeping up a continuous supply. Such information is only to be obtained on the spot by actual experience. Successional crops of *Walcheren Broccoli*, *Cauliflowers*, and *Cabbage* must be planted to meet the demand. See that the young *Celery* has a good supply of water and plenty of air. Checks are extremely hurtful to vegetables requiring to be quickly grown. This is the best time for sowing the principal crops of Red and Silver *Beet*, *Salsafy*, and *Scorzonera*, as they are apt to run to seed when sown earlier. Frequently hoe between the crops of *Broad Beans* and *Peas*, and stick the latter before they become too tall; also use the hoe between the crops of *Carrots*, *Onions*, *Parsley*, and *Parsnips*. *Lettuces*, *Radishes*, and *Spinach* should be sown frequently. Sow *Sweet* and *Bush Basil*, also *Sweet Marjoram*, in gentle heat for transplanting. Make a sowing of those kinds of *herbs* required to keep up a regular supply. The first rain there is, let the herb compartment be put in order. Another crop of *Scarlet Runners* may be planted. See that *Tomatoes* are being properly hardened-off to be planted against spare palings or open parts of the garden walls next month. A few in some places may be tried on a warm sloping bank. Assist the newly-planted crops by waterings.

FRUIT GARDEN.

Persevere in the destruction of insects, and use every means to prevent the young shoots being injured, for if they sustain any check at the present season they will not soon recover, the wood will be made late, and unless the autumn should prove favourable it will not be possible to get it well ripened. In cases where tobacco water cannot be easily obtained, a mixture of flowers of sulphur and Scotch snuff applied with a sulphurator will be equally efficacious, but this should not be resorted to on a showery day, unless the trees can be covered to prevent its being washed off too suddenly. Look after the caterpillars on Gooseberry trees. One way of getting rid of this pest is to give the trees a heavy washing with a powerful engine, throwing the water against the under sides of the leaves, so as to wash off the caterpillars. They may then be readily killed on the ground.

FLOWER GARDEN.

Now that we have showery and somewhat mild weather, this department will afford ample employment for all the strength which in most cases can be concentrated upon it. Hardy annuals must be sown at once, covering them lightly with fine soil. Stocks, Pentstemons, Antirrhinums, Hollyhocks, &c., that have been properly hardened off, should be placed where they are to bloom, as also any remaining stock of biennials and perennials. The planting of tender Roses should not longer be delayed. Get bedding stock hardened off as expeditiously as possible, but in removing them from the pits and frames place them where they can be covered at night in case of necessity, and also take care that they are not injured by too sudden exposure to bright sunshine. Be particularly careful that the stock is perfectly free from fly before removing it from under glass. Encourage any backward stock to make free growth in order to get them strong before bedding-out time, for it is useless planting out until the plants are of some size and well established. There is nothing which sets off the grounds of a residence so much as good gravel walks. To keep them, however, in proper order they generally require to be freshened-up annually. Dry weather in the spring is the proper season, as various small weeds which establish themselves during the winter can then be destroyed. Unless the gravel requires entire renewing, a shallow loosening of the surface, to be raked over every alternate day for a week, will suffice, after which a thin coat of new gravel should be put on, and the whole well consolidated by rolling. Whatever kind of material the walks are made with, to secure their dryness there should be a sufficient number of drains to carry off the surface water. In finishing them off no more rise should be allowed from the sides to the centre than will carry the water to the edges freely, as nothing is more disagreeable to walk on, or for appearance, than walks raised much higher than the margin of turf at their sides. The gravel walks connected with the flower garden may remain till the beds are furnished with the summer plants; the whole can then be finished-off without entailing any disturbance which planting the beds might cause, and thus will afterwards continue in good order throughout the season. When the weather is favourable Dahlias may be planted out in very rich and well-prepared soil. It will be advisable to cover them with an inverted flower-pot if the nights appear at all likely to be frosty; the main supports should also now be put to them; if deferred till a later period the young fibres are apt to be injured.

GREENHOUSE AND CONSERVATORY.

As the conservatory plants are now making active progress the whole will require liberal waterings. Such as are growing in the open borders should be frequently examined to see that they have their proper share. Take the opportunity of an early hour in the morning to give a good washing with the engine or syringe to everything except the plants in bloom; the house will then become airy and enjoyable by the forenoon. Frequently clean over the borders, and remove decayed blooms and leaves as they occur, that the house may at all times present a clean and fresh appearance. As soon as the cold pits and frames become clear of bedding stuff they should be occupied with young stock of hardwooded plants, for the summer growth of which they are better adapted than large houses. Such plants will also be found suitable for dwarf Lobelias, Salvia splendens, S. gesneraeflora, and many other plants which are generally grown for flowering in the conservatory in summer and autumn; indeed, most plants which require only a moderate temperature will be more manageable here and thrive better than in lofty houses with double the attention. As early-flowering New Holland plants go out of bloom they should be treated in the way most favourable to secure compact growth, placing them in an airy part of the

greenhouse. When the buds have fairly started will be the proper time for shifting such as require more pot room, as they can then be kept somewhat close for a fortnight to encourage free root action without incurring the risk of the buds breaking scantily. Look well to the stock of plants for summer and autumn decoration, and do not allow them to sustain any check from want of pot room or carelessness in watering. —W. Keane.

DOINGS OF THE LAST WEEK.

KITCHEN GARDEN.

We made some successional sowings, as alluded to last week, and found after the rains that our heavy ground required a considerable amount of preparation, and we never knew such preparation to be labour thrown away.

Asparagus.—After the frost, snow, and sleet we did not gather any for several days; since the warm weather it has been plentiful and good. We do not trouble ourselves with peculiar knives for cutting it beneath the soil. We like it better to be some 6 inches above it, and nearly all green. Such heads are soft and tender for from 2½ to 3 inches in length, a very different affair from being able to masticate only a little bit at the point. As to gathering, at present we take all large and small. Experience leads us to the conclusion that this plan is the best. Years ago we used to leave a good portion of the weaker shoots, but we found, when we finished gathering, that the Asparagus rows or beds were not so strong as when we cleared off all that came until, say, the middle of May, or even later. Besides, the small shoots, too small to be presentable at table as a dish, when obtained in large bundles at least as large as two spread hands can clasp, if boiled and passed through a fine sieve make a fine Asparagus soup, though we forget the proper name.

Sea-kale.—Our blanched Sea-kale is nearly over, and it is apt now to become a little stalky and stringy. Just let our readers test what we said last year, and try the hardy exposed heads that show the flower, cutting them off when from 4 to 5 inches in length. Between these and the blanched heads now there is no comparison as respects tenderness and flavour.

Leeks.—These are now first-rate. Singularly enough they are more cooling than Onions, and when well blanched make a tender dish. They must be used ere long, as they will soon begin to throw up their flower-stalks, and then all their crispness and sweetness are gone.

It always pleases us to see a good bed of Onions in a garden of an out-door labourer. A few Onions cooked or raw will greatly help him in his out-door dinner. Who that has the chance of seeing the earnestness with which gardens and allotments are now cultivated, would ever be able to reconcile it to his conscience to speak or write of the slovenliness and idleness of English labourers? We have had reason to find fault with want of tidiness in autumn, when the mind and the physical powers alike are too apt to be influenced by the depressing circumstances of the waning year. But now it does one good to see and hear of so much industry in garden and allotment. In such cases the leaving work at 5 P.M. gives a great advantage. The man who, after a suitable refreshment, turns out then with his young children all willing and anxious to help and do their share, ought not surely to be called careless and idle. True, he is working for himself, and that is a consideration, but if such work in the garden is kept in moderation, say two hours or so, after considerable experience we can confidently say, that the man who thus attends earnestly to his own garden at home and makes the most of it, and thus gives the most valuable of industrial lessons to his young children, is just the sort of man we would choose to be an assistant in a gentleman's garden. It is possible for a man having a large allotment to overdo himself morning and evening, and thus be unable to do his duty properly as a day labourer, just as we have long satisfied ourselves that extra-hours labour, though very useful at times, will cease if long prolonged to be worth the money paid for it; still, on the whole, as a general principle, and if the choice were given us, we would select as an assistant labourer the man who was most diligent in his own garden, and in attending to the interests of his wife and family in his own time.

FRUIT GARDEN.

To save watering trees in pots in orchard houses, we have mulched with 1½ inch of horse droppings. The watering will be enriched, but after the soil is warm enough such mulching now, from arresting free evaporation, greatly economises watering. The bright sunny weather of the week has also forced us to water the borders of the orchard house, Peach house, and vineries. As to vineries, we must go over the late ones to rub off extra shoots, tie-in, &c., as the eight days' bright weather has brought them on sooner than we wished, and more especially as we wished to get a lot of *Strawberries* off before the Vines would shade them. When set they will swell well enough, though partly shaded, but then, what is the flavour worth? We think we have more than once referred to the time of gathering when flavour is concerned—that is, when the soil is dryish rather than newly watered, and after some hours' sun, if sun is to be had; then the forced Strawberries will beat, or at least equal, those grown out of doors. Strawberry plants in pots required much watering during the week, as welting not only injures the crop, but is almost sure to be followed by attacks of red spider, and that will not only spread, but destroy all richness of flavour. Sulphur and moisture are its greatest enemies. Sulphur fumes, however, should never be warmer than about 160°—that is, when they arise from a heating medium. They should not be above half that temperature when they reach the leaves of the plant. If this hot bright weather continue, which we hardly expect, as the barometer is falling fast on the 4th, it would be advisable to dauh all open spaces on walls with flowers of sulphur.

In the sudden transition from dull weather to the extreme of brightness we slightly shaded orchard houses and vineries, where work had to be done, with a little water slightly whitened, thrown on, or rather spattered over, with the syringe. All houses on the change were kept damper than usual by syringing paths, floors, stages, &c., and care was taken in most cases to let the fire heat fall low before the sun heat began to tell. This assisted also in keeping the atmosphere more moist, as less air was required to be admitted, for in some of the hottest days the air outside was very dry and parching. Early airgiving is far more important than the great quantity, provided the temperature from sun heat rises gradually, and there can be no accumulation of moist air overheated to blister and scald.

ORNAMENTAL DEPARTMENT.

See what Mr. Keane says about attending to Tulips, Auriculas, Pinks, Carnations, and other florists' flowers. Our work has been chiefly a repetition of that of previous weeks. We have been putting in our last batches of cuttings, and getting bedding plants where they will be a little protected and be hardened off before turning them finally out a fortnight hence. We have been obliged to use trenches in the kitchen garden almost solely this season, owing to alterations interfering with our previous arrangements.

Edging walks, flower-beds, and borders with the edging iron. We dislike a deep raw edge as much as anyone can, but when the grass is not more than from 1 to 1½ inch above the gravel or flower-bed there will be little of the cut edging seen after a few days, and hardly any at all if the iron in cutting is bent inward a little from the perpendicular instead of outwards. After various trials we found we could not go on well without this one thorough cutting once a-year. With pegs and line we thus obtain a straight or regular edging, and the clipping-shears can do their work much better afterwards. It is always advisable to cut no more away than will just ensure the regular outline. To do this, if there is an unseemly break it is better to push the turf out with a piece placed behind it than to cut in to the grass or verge, as in doing so there are two drawbacks—what is thus cut off must be wheeled away; and if there is much the walk is all that more widened. You also get earth at the sides instead of gravel, and therefore there is more risk of a crop of grass weeds there. All such cutting is best done in dry weather. The line does best when dry, and the clearing away of the cuttings is more easily and quickly done. There is just one preparation for the cutting of the sides of walks and flower-beds, which we deem very important, and that is the ground near the edgings should be well rolled and mowed previously. The rolling makes such a difference as respects clean cutting.

Another matter taking up time has been *shading* part of the *houses* so as to last the most of the summer. To do this neatly and effectually, and to give little trouble afterwards, nothing is better than gauze netting or thin tiffany fastened tightly inside by means of rings, so as to be easily put on or off at pleasure. Outside shading blinds are very useful and the best, because you can shade as you like, and unshade when there is no bright sun. We wanted to shade a part and have

the other glass clear without at present resorting to any of these means, or even the simple expedient of window-blinds. We fell back, therefore, on some milk, whitened with fine-powdered whitening mixed with it, say a piece of whitening about the size of an egg to half a gallon of milk. Those who contemplate this mode should try some on a square of glass and let it dry, and then judge if it is to their taste as to thickness or thinness of shade. It is easily applied with a brush roughly, merely drawing the brush down between the bars. To do it neatly in a particular place requires a good deal of time, and two brushes, one to place the mixture thinly all over the square or glass outside, and the other to daub it all over with the point of the brush. We have just done the upper part of the front of a corridor, leaving the lower part free, and it makes a great difference to the force of the sun inside, looks very neat, and, until one comes close to it, one would imagine that a light blind was suspended inside for a regular depth all the way along. We expect that will stand all the summer. Two things are essential to this work being done in the manner stated so as to be lasting and look neatly—the glass should be perfectly dry, and if well warmed by the sun before the application all the better. Skim milk is used. On the whole we like it better than size or glue.—R. F.

TRADE CATALOGUES RECEIVED.

J. Carter, Dunnett, & Beale, 237 and 238, High Holborn, London.—*Catalogue of Bedding and other Plants.*

T. Bunyard & Sons, Maidstone and Ashford.—*Catalogue of Bedding-out Plants, Tricolor and Double Geraniums, Greenhouse Plants, &c.*

TO CORRESPONDENTS.

Back Number (*S*').—Our number dated January 4th, 1872, is out of print, and we do not know where to obtain a copy.

Address (*Dr. D.*).—We do not know the address. Write to Mr. Corbett, Secretary, Farmers' Club, Salisbury Square, London.

Flower-beds Planting (*A Young Reader*).—We never undertake the planting. Send us another plan and how you propose planting, and we will criticise it.

Patent Fertiliser (*Grange Club*).—We know nothing either of its composition or utility.

Lawn Mower (*H. P.*).—We do not know that you mention. Write to the makers, and ask for a reference to some who have used it.

Primroses.—The Rev. F. Fitzpatrick, Cloon Rectory, Mohill, Ireland would be glad if "D. F. A. K." would exchange for a light blush double Primrose a plant or two of his bright magenta, yellow-eyed single Primrose. "E. C. S." can exchange a root of single white Primrose for any other good one. Apply to T. P. Fernie, Kimbolton.

Greenhouse Climbers (*H. S. C.*).—For the wall which receives no sun we do not know anything that will suit so well as Ficus repens, which, however, will not succeed in a cool greenhouse, but does well in one with a winter temperature of 40° to 45°. Lygodium scandens, a climbing Fern, is also suitable.

Lycopodium Browned (*Lycon*).—We should attribute the brownness to the soil in the troughs becoming sodden or sour, though dryness will at any time cause the Lycopods to die. Perhaps the troughs are not shaded from the direct powerful rays of the sun, in which case the Lycopods will become brown. If this is the cause shade will put them right, and they should be kept constantly moist; but if the soil is sour from want of proper drainage, your only remedy is to take them out, refill the troughs with fresh soil, and replant, providing efficient drainage.

Jasminum for Greenhouse Walls (*A Lover of Flowers*).—Jasminum azoricum, *J. gracile*, *J. grandiflorum*, and *J. odoratum* are all suitable for growing in pots in a greenhouse, where the shoots should be trained to trellises; or they may be planted out in the borders and trained to trellises. In a shaded position they will not succeed.

Striking Herbaceous Phloxes (*H.*).—You have done right with the cuttings; you have only to guard against damp, and we have no doubt they will strike freely. We prefer shoots from 3 to 4 inches long taken off at the crown. The cuttings strike freely under a hand-glass in sandy soil out-doors if put in after May.

Syringing Greenhouse Plants in Flower (*R. B. L.*).—It is not advisable to syringe plants in flower. It ruins the flowers, and ought not to be practised when the flowers are expected to last for any length of time in good condition.

Pelargonium and Geranium (*J. V.*).—What are commonly called Geraniums are not Geraniums at all but Pelargoniums. There is no doubt that there is a great difference between the Storkshill and Cranesbill—they constitute two different genera; but there is no very great difference between what are commonly called the Geraniums used for bedding purposes, and the Pelargoniums used for in-door flowering. Both are Pelargoniums. Pelargonium is characterised by having usually seven stamens, and unequal-sized petals; Geranium, by having ten stamens, and equal-sized petals; and Erodium, by having five fertile anthers usually. The three genera are nearly allied.

Shading Pansies and Auriculas (*Idem*).—You will find tiffany stretched on a frame answer very well, and it will be better than planting under a north wall.

Newly-planted Peach Trees Pruning (*Kittie*).—It is hardly necessary to cut back to within 6 inches of their origin the shoots of trees planted with shoots 3 to 4 feet 6 inches long. Some pruning is necessary, but we have not for some years practised this close heading-back except as regards the central shoots, which, of course, must be heated-back rather closely to produce shoots at the requisite distance apart for furnishing the wall; but the side shoots we do not shorten to more than two-thirds their length. Your trees after a year's growth will not be any larger than when planted.

Peaches in Pots not Setting Fruit — Vines in Ground Vinery (*Amateur*).—In the neighbourhood of London we find that Peach trees in pots ripen their wood well if the pots are plunged out of doors in June. The best position for them is one exposed to the south and west, but sheltered from the east and north. We do not understand your Peach trees in 15-inch pots not showing blossom. We would treat the trees in this way: Turn them out of the pots, and reduce the ball of earth; place the trees in clean pots of the same size as before, using a compost of five parts turfy loam to one of rotted manure, and ramming in the compost quite firm. Do not allow any roots to grow through the holes in the bottom of the pots. Confine the growths of the Vines to the ground vinery.

Peach-tree Centres Bare—Training Vines (*T. H. T.*).—We presume yours are wall trees. If so, the shoots which are breaking away from the base of the tree will cover the naked wood. It is bad management to lay-in the young wood too thickly, and thin it out freely in the following spring, as is sometimes done. You will do little good with trained Vines on the back wall of your vinery. We find 2 feet 9 inches from each other a very suitable distance to train the rods; but at 3 feet 4 inches, as you have them, the light would be excluded from the back wall.

Vine Leaves Puckered (*H. P. Volter*).—Sudden changes of temperature are, probably, the cause of this. All the top lights of a vinery ought to be moveable. In your house maintain a temperature of 65° by night, with a rise of 70° to 75° by day, and a maximum of 85° from sun heat. Let the water which you apply to the roots be warmed by exposure to the sun, or by some other means, to the temperature of the house.

Vine Shoots Decayed (*C. R.*).—The roots are sluggish, and do not supply sap sufficient to sustain the growth. If they are outside the vinery, put a heap of fermenting dung over them, and keep the surface mulched all the summer. If they are inside the vinery, water them liberally with very weak tepid manure water. The insect is one of the weevils, Curculio picipes; it feeds on the Vine. Mrs. Pince's Black Muscat and the White Romain will ripen Grapes in an unheated house.

Cactus not Flowering—Pear Tree Barren (*Old Subscriber*).—From the description we believe your plant is a species of Echinocactus. Remove the offsets, and pot them singly in small pots in a compost of equal parts of loam, peat, and mortar rubbish. Keep the plants very dry at the roots in winter, and water very sparingly in summer. Under this treatment the old plant ought to flower. Probably the Pear tree carries too much blossom; thinning the fruitful spurs may do some good, but it is, no doubt, a variety that does not set freely. You should, if such is the case, graft some improved variety upon it.

Tropæolum and Primroses (*A Subscriber*).—It would be very difficult to say to which Tropæolum you allude. T. canariense, with pale yellow flowers, is much grown, but it may be T. Lobbianum or any other species, as you give no description. The single and double varieties of the common Primrose are the best to plant. The double yellow, lilac, white, and purple are very pretty. Of the other kinds, the best are P. amœna, a variety of cortusoides, P. nivalis, P. intermedia, P. farinosa, P. denticulata, and the beautiful P. japonica, the most noble of all the species, and said to be hardy in Britain. They may be planted either before or after the flowering period.

Newly-planted Fruit Trees (*An Irish Subscriber*).—Mulch the surface over the roots, and keep the mulch on all the summer. If the soil is moderately fertile they will need no manure.

Seeds of Stove Plants (*C. B.*).—Barleria variegata and Poinciana pulcherrima are evergreen, and from India. Aristolochia grandiflora is a stove climber from the West Indies; Tecoma stans, a cool stove or warm greenhouse shrub, subscandent; Quisqualis indica, a stove climber from Java; and Citrus macrocarpa, a warm greenhouse or cool stove evergreen of the Orange family. They must all be raised and grown in good heat, both top and bottom, until established, and may then be hardened-off and kept in a stove or warm greenhouse.

Planting Guernsey Lily (*A. C. S.*).—On a well-drained, warm, south border of rich light soil, it will flower out of doors. Plant out now, placing the bulbs 6 inches below the surface, and about a foot from the wall; water well in dry weather until the leaves turn yellow, then discontinue watering. In autumn mulch with leaves, so as to cover the bulbs fully 3 inches deep.

Climbers for Stove (*West Lodge*).—Stephanotis floribunda, Ipomœa Horsfalliæ, Clerodendron Balfourii, and Bougainvillæa glabra. These will not give you much shade, but if you wish for those with a larger leaf-growth, Passiflora princeps, P. calycina, P. Decaisneana, and Bignonia venusta.

Narcissus and Tulips not Flowering (*J. S.*).—We think the cause of their not flowering is their having been badly ripened, in consequence of the forcing last year and the after-planting in cold ground. We are not surprised at their not flowering, especially as you have forced them again. The bulbs are of no use for forcing the second year, and should be planted out in good, rich, light soil, where they may remain, and will generally bloom well after a year or two. They are only fit for out-door culture after the first year.

Green Fly on Gooseberry Trees (*N. S. S.*).—Wet all the leaves by syringing them with water, and then sprinkle tobacco powder or Scotch snuff over them. Select a calm day for the purpose. We have no work on the culture exclusively of heavy Gooseberries.

Diseased Pear Tree (*A. Atkinson*).—It is the worst case of American blight that we ever saw. The insect causing those huge excrescences is the Aphis lanigera. The earth around where the roots were should be burned, for the insects winter there. You will find Bugainvillæa spectabilis in the "Cottage Gardeners' Dictionary. Of "Gorrigore—Fragilus Caracala—or Snake Plant" we know nothing by those names. It may be Phaseolus Caracalla.

Destroying Crickets and Woodlice (*R. C. B.*).—The best mode of destroying the crickets is by mixing half a pint of oatmeal with 1 oz. of arsenic, and half an ounce of aniseed and caraway seed, and laying this mixture on pieces of paper near their haunts. The poison should be kept from the reach of domestic animals or fowls. Chase's beetle poison will also answer. The most effectual way of destroying woodlice is to pour boiling water on them. They will generally be found secreted about the walls. A boiled potato wrapped in a little dry hay is a good trap for them. The temperature of a fruit room should be as low as possible without freezing. The colder it is the longer will the fruit keep.

Slugs in Asparagus Beds (*Elan Thomas*).—Apply salt immediately at the rate of 1 lb. to every square yard, and a similar quantity at the end of June. We never apply salt at any time except when the plants are in a growing state. In autumn and winter we never use it.

Garden Labour (*Overworked*).—Although it is possible to do the work with the assistance you mention, it is impossible to do it well with less than double the help you have. If your vineries are full-sized—say 40 feet long by 14 feet wide—and as your conservatory is large, the work of preparing plants for it and that connected with the Vines cannot be done in a creditable manner in the spring and early summer months. If your employer does not object to the flower garden being filled with hardy plants, will be content with a very limited number of plants grown for the use of the conservatory, and is not particular about the appearance of the pleasure grounds and walks, it may be possible to rub on; but even then the most cannot be made of the kitchen garden, because there may not always be time to get the crops in that are wanted at a particular period. We certainly recommend your employer to give you more assistance; at the same time no employer ought to be urged to pay for his gardener's hobbies.

Various (*J. J.*)—A little spent hops as mulching over the young Pear and Apple tree roots will be an advantage if applied not now, but in June or July after the ground has been heated; much mulching early in summer keeps the ground and the roots too cool; put on after the ground is heated, it keeps the latter moist and encourages surface-rooting. We think your proposed planting will look very well, but we would place the Cinerarias in the centre, and the band of Iresine Lindeni a little closer, so as to leave 8 or 10 inches from the grass for the fine-foliaged Geraniums, instead of 6 as you propose, as that would be too near, and would only permit of justice being done to the plants. Ten inches apart will do if these Tricolor Geraniums are of a fair size, but if rather small and you want a fine effect, from 6 to 8 inches apart will give room enough. If you are scarce of plants, you may insert a plant of the Lobelia between each. These four small beds centred with Cineraria, ringed with Iresine Lindeni, and edged with Mrs. Pollock, Nestacea, &c., will look very well. For the central large bed we would plant such varieties of Zonals, but we are doubtful of having Purity for the centre, if it is the white we suppose, as it is not so strong-growing as Bayard, Orange Nosegay, &c. Besides, as the other beds are centred with white, we would centre this with scarlet or pink, and tone down through Rebecca and Amy Hogg to Purity, Madame Vaucher, or any other good white, for the outside row. A string of Cerastium would improve it, even if 3 inches wide; and if you did not use Lobelia for the margins of the other beds, in this central bed we would mix a string of blue Lobelia and Cerastium.

Garden Apprentice (*Kittie*).—We think it would be better for the young man to remain a year or two with your old gardener, or get into another garden for a year or two. There is no general practice as to taking apprentices in nursery gardens. Some nurserymen will not have them at any price, and others will take a young lad with a premium, or without a premium but with reduced wages. If the youth wish to follow the nursery part of the business he had better go into the nursery line at once; you are only willing to help him, we think an advertisement making a similar statement to that which you have done to us would most likely bring you some answers. If, as you say, well educated, active, and willing to make himself useful, were we in a position to do so, we should think that without any premium his labour would be worth from one-half more to double of what he now receives. A sum of 5*s.* is very little for a lad of sixteen years of age.

Fixing Hot-water Pipes (*Rochester*).—In your case with so much danger from drainage water, we would a saddle-back or a saucepan-boiler. You might then have the boiler and even the ashpit above the ground level; and if the flow-pipe is a foot above the top of the boiler you will have a fair circulation, but not such a rapid one as if you had 2 or 3 feet of a rise. We have worked boilers, such as those that need no brick-setting, without any rise at all, and they did well, but the flow is not so rapid. With a rise from the boiler your pipes will have to be higher in the house. Thus, if your small boiler has the top 15 or 18 inches above the ground level, the pipes inside need not be more than 18 to 21 inches above that level. We should have no doubt ourselves in doing and working it thus; but if you have doubts, then the best thing you can do is to use lead, or brick and cement, to make your stokehole a dry tank to keep water out.

Packing Grapes (*A Customer*).—The following is the method recommended by Mr. W. Thomson, the eminent Grape-grower:—"I have light deal boxes made, capable of containing 10 lbs. of Grapes. The boxes have a division in their centres, and are thus in two compartments. I place a layer of fine paper shavings in the box; I then wrap each bunch of Grapes in a sheet of fine silver paper, and lay it on the shavings in the box, then a few shavings between it and the next bunch, till the compartment, which holds four moderate-sized bunches, is filled, when all corners round the bunches are stuffed full of shavings, and a layer is laid on the top of all, so that when the lid is put on the screw nails the bunches are subject to a sort of elastic pressure. This, without bruising them, serves to keep them from shifting in the box. It is better to err on the side of packing them too firm than loose, for, tossed about as boxes are in railway trucks and vans, if they are not firm they suffer very much. The division in the box takes off the weight of pressure one set of bunches would exercise on another."

Vine Leaves Scalded (*W. B. E.*).—It is merely a case of sun burn, and as only two leaves are injured, it will in no way affect the general health of the Vine. It happens in the best-managed houses.

Warted Vine Leaves (*S. Saunders*).—The Vine leaves are slightly warted, which shows either that there has been too much moisture at the roots, or too much moisture in the atmosphere of the house. The scalding and blistering of the leaves arise from a totally different cause—a moist atmosphere, bright sun, and the want of air sufficiently early. Give air early in the morning or leave a little on all night, and you will have no more scalding. Confined moist air with the sun beating on it soon becomes like steam from a boiler. We expect you find the scalding worst near the top of the house.

Rootlets from Vine Stems (*Mrs. Y.*).—If the atmosphere is so dry as you say, then the roots are not in a healthy medium, and as fresh rooting does not take place freely in the ground, the Vines in self-defence threw out roots at the joints.

Ants (*S. Munn*).—We can add nothing to what we recommended last week, page 372.

Insects (*I. St. George*).—The small red grub which infests the young buds of Raspberry plants, eating into the stem, is the young of a pretty little moth, Lampronia rubiella, a figure of which, in its different states, shall shortly appear.—J. O. W.

Names of Plants (*A. Rawson*).—It is the white variety of Orchis morio. *Cummings*).—1, Eucalyptus pulverulentus; 2, Nerium Oleander; 3, Senecio (Cineraria) tussilaginoides, or a closely allied species. (*D. D.*).—1, Lastrea, probably same as 2; 2, Lastrea dilatata; 3, Too young for determination. (*E. Eades*).—1, Aspidium (Polystichum) aculeatum; 2, Asplenium Adiantum-nigrum; 3, Bryophyllum calycinum. (*Sigma*).—3, Polypodium lycopodioides; 4, Polypodium (Campyloneuron) repens, *L.* (*Rush*).—Both are varieties of Lacbenalia versicolor. (*C. T., Sussex*).—Orchis morio. (*T. W. Y.*).—1, Doodia lunulata; 2, Nephrolepis exaltata; 3, Pellæa hastata; 4, Scolopendrium vulgare, var. crispum; 5, ditto, typical form; 6, Aspidium (Polystichum) angulare. (——).—The letter of a correspondent enclosing two Orchids has been unfortunately mislaid. No. 1 ("Cattleya?") is probably a variety of Cattleya Skinneri; No. 2 (with "leaves about 6 inches long, and pseudo-bulbs about the size of a pigeon's egg") appears to be a Sarcopodium. (*O. H. B.*).—It is impossible to name plants from single leaves.

POULTRY, BEE, AND PIGEON CHRONICLE.

A FACT FOR OUR KITCHEN AUTHORITIES.

When the Duchesse d'Angoulême was a child in the palace of Versailles, and the Parisian mob clamoured under the windows for bread, it is said she asked a lady in waiting why they cried out for bread. Receiving for answer that they had none, she said, "Why do they not eat pastry?" So Mr. Balderstone, coming home from the city one Saturday, told the partner of his fortunes that, contrary to his usual habit, he had not brought the Sunday dinner. The advent of the city man (clerk, it may be), living in the suburbs, to home earlier than usual on Saturday, is second only in importance to that event of past years, the arrival of the husbands' boat at Margate. Everything is in order: the dinner somewhat later, and visions of croquet, cricket, rounders, or, if that cannot be, the treat of a long walk with father—or papa, as may be the fashion—will be enjoyed by anticipation by all. The careful housewife—God bless her, we write for such—has brought the consumption of the week to a clever crisis, and a rice pudding has been necessary to eke out Saturday's dinner. Father dines with them and carves on Sunday. The dinner is provided from a square brown basket, which is brought on Saturday only, and from which emerges a piece of beef or a choice joint of mutton, and at times oranges, at another figs, or almonds and raisins—cheap pleasures, but appreciated by children, and, well used, forming the cement by which the bricks of mutual love, respect, and dependance are made into one compact mass for after years and trials.

"Oh, dear! dear! dear! here's that prosy fellow at work again! It's so long since we heard of him, we hoped he had emigrated. We doubt it, but he might be tolerable at the antipodes; but here ——. What has this to do with poultry?" Not much. But the basket came down empty on this occasion. When it was announced there was no frown on the good wife or children's face. They knew the husband and father would reverse the Cranstoun motto and say, "I will want ere you shall want;" but, as an old statesman said that loyalty was difficult for a man breaking stones at 9*d.* per day, so it is difficult to see the end of a difficulty when wife and children look for dinner when they come out of church and the joint is missing.

"Well, but, George, how has it happened?"

"Everything, Emily, is beyond price. Mutton 11*d.* per lb., roasting beef a shilling, veal out of the question, and lamb no longer sold by weight but by the joint. I turned everything over in my mind till my ideas were like a tangled ball of string, and then I made up my mind to leave you to advise me."

"Papa," said one of the little ones, "let us have some poultry. I recollect we had a Goose once."

"No," said the eldest girl; "we have plenty of eggs, let us have eggs and bacon." The thought seemed a happy one, the dish was a new one; it was accepted, and the usual Saturday's walk was merrier than common.

"I do not know," said the wife in the evening, "what we are to do if meat continues at the present price. It seems to me everything increases in value except the labour of educated men. The children must have meat, and the expense is terrible. We shall be obliged, as Septimus said, to eat poultry." This was said with a smile, as, on the occasion of the last christening, paterfamilias had purchased two fowls which were uneatable, being so hard. In the evening an old friend came in, a French lady, who on a small income had lived for years abroad and in England, and the occurrences of the day formed the subject of a cheerful conversation.

"Ah!" said she, "the old story. Nothing but the best meat and poultry, and that made the least of. Nothing but a lump of meat roasted or boiled, doing only half the service it is capable of doing in a family. No poultry, no helps, all for want of a knowledge of cookery or contempt for the science. Now listen, out of those two fowls which were thrown away I could have made a savoury, succulent, and nourishing dish. Poultry need not be beyond the reach of the middle classes of England. It is not so abroad, where people are not so well off as they are here. But in France a knowledge of cookery supplies the want of excellence in the meat. That which is unfit for roasting or boiling may be stewed or made into a delicious pie.

"This is the mode of doing it. The fowls, however old, must

be cut into small joints. This is important, as it enables many more persons to be helped from the dish, and does not give it a mangled appearance when put away for the next meal. They should be divided at the joints, thus avoiding splinters of bone. When the pie is about to be made collect all the odd scraps of meat, pieces of lean bacon, shreds hanging on the bone of a shoulder or leg of mutton. If you have none, buy a pound or two of the coarsest and cheapest lean beef, cut it in small pieces, put them all together—scraps, lean beef, bacon, and everything of the sort. See that you have nearly enough to fill your dish. Season it to your palate. If you have odd pieces of bread, cut them in slices and toast them. Rub a little lard round the sides and on the bottom of the dish, which must have an earthenware cover with a small hole to allow steam to escape. Cover the bottom and sides with the toasted bread; then begin to form your mosaic, putting alternate pieces of meat and poultry, filling the interstices with scraps of any kind. When full pour in the best gravy or stock you have. As you do not want it strong you will make as much as you require with the *débris* of the fowls. Take the neck, legs and feet, gizzards, livers, and hearts, and put them in to simmer by the fireside. As soon as the broth has a little flavour pour it in the pie, and put the meat in also. Put some toasted bread on the top, with a little bacon if you have it. Put on the lid, tie it down, send it to the baker's, and let him put it in a slack oven for twelve hours. When it is brought home let it stand till it is cold, and you have a delicious dish. It looks like mosaic, or like old Sienna marble. Every hollow spot or place is then filled with jelly. Even water poured in when there is no broth becomes jelly after the pie is cooked. Any poultry or game, however old, may be dressed in this way; and as it is rich food should, as an article of consumption in a family, be eaten with bread and vegetables, and thus be made to last a long time.

"Coarse pieces of meat of different sorts may be dressed in the same way. The bread may be omitted if it is wished. I know such things will never supersede the joint in England, but they are valuable helps; and a proper respect for and knowledge of cookery among the middle and lower classes of England, although it would not increase the production of meat, would make the same quantity feed one-third more people than it does now. Forgive my chattering, madame. Some day I will talk to you about the '*pot au feu*.'"

DOVER AND CINQUE PORTS POULTRY SHOW.

This was held on the 1st and 2nd inst. at the Wellington Hall, Dover. There were nearly four hundred entries—namely, upwards of 280 of poultry, and 90 of Pigeons.

Dorkings.—*Coloured*—Cup and 2, E. Rice, Sandwich. 3, R. Cheeseman, Westwell, Ashford. *hc*, W. S. Marsh, Winkland Oaks, Deal; G. W. Greenhill, Ashford; R. Cheeseman. *c*, F. Warde; G. W. Greenhill, Ashford; S. George, Selling, Faversham.

Dorkings.—*Silver-Grey*.—1, F. Cheeseman, Chart Court, Ashford. 2, J. B. Plumptre, Goodnestone, Wingham. 3, C. Ratcliffe, Womenswould. *hc*, C. J. Plumptre, Wingham.

Spanish.—Cup, J. Francis, Hildenborough. 2 and 3, W. Brown, Dover. *hc*, E. J. W. Stratford, Addington Park, Maidstone. *c*, H. Gillett, Chilham; T. L. Elliott, Ashford.

Cochin-China.—1, C. M. Stickings, Wye. 2 and 3, H. Kennett, Canterbury. *c*, J. R. Mausell; W. Jacobs, Shepherdswell; J. Collard, Reculver.

Brahmas.—*Dark*.—1, W. Jacobs. 2, W. A. Beckles, Wootton, Canterbury. 3, E. J. W. Stratford. *c*, T. Goodwin, Maidstone.

Brahmas.—*Light*.—1 and 2, Rev. F. T. Scott, Shepherdswell. 3, E. Rice, Sandwich.

Game.—*Black and Brown-breasted Red*.—Cup, J. Jeken, Eltham. 2, G. Braham, Ashford. 3, G. Jeken, Martin, Dover. *hc*, J. Jeken (2); W. Foster, Deal. *c*, T. G. Ledger, Folkestone.

Game.—*Any other variety*.—Cup, E. Rice. 2 and 3, W. Foster. *hc*, J. Jeken. *c*, E. Rice; C. J. Plumptre.

Hamburghs.—*Gold and Silver pencilled*.—Cup, W. Jacobs. 2, C. J. Plumptre, 3, W. White, Canterbury. *hc*, G. W. Greenhill. *c*, J. Chapman, Ashford.

Hamburghs.—*Gold and Silver-spangled*.—1 and 3, H. H. Stickings. 2, F. Cheeseman.

Polands.—1, C. S. Goodwin, Dover. 2, Rev. E. Husband, Folkestone.

Houdans.—1 and 3, W. Dring. 2, E. J. W. Stratford. *hc*, E. J. W. Stratford; W. Perkins, Brabourne, Ashford.

French.—*Any variety*.—Cup and *hc*, W. Dring (Crève-Cœurs). 2, Mrs. S. E. Bacon, River, Dover (La Flèche). 3, R. J. Hilton, Faversham (White Crève-Cœurs). *c*, T. G. Ledger (Crève-Cœurs).

Any other Variety.—Cup, W. F. Harvey, Chartham (Cuckoo Dorking). 2, W. A. Beckles (Blue Dorking). 3, H. Pankhurst (Andalusians). *hc*, H. W. Thorpe, Dover (Manx); R. J. Hilton (Cuckoo Dorking). *c*, T. Jacob (Speckled Sussex); Miss E. J. N. Hawkers, Tunbridge Wells (Silkies).

Bantams.—*Game*.—Cup and 2, W. S. Marsh, Deal (Black Red). 3, Miss E. Dyne, Dover.

Bantams.—*Any other variety*.—1, J. Edwards, Beaver, Ashford (Japanese). 2, W. Forster, Deal (Black Yorkshire). 3, Miss E. J. N. Hawkers (Silkies). *hc*, G. Swaffer, Dover (White Booted); H. Pankhurst (Feather-legged White).

Pheasants.—*Any variety*.—1, Mrs. M. Birmingham, Dover (Silver). 2, F. Wade, West Farley. *hc*, E. Hubbard (Common); Mrs. S. E. Bacon (Silver); Mrs. M. Birmingham (Golden).

Ducks.—*Aylesbury*.—1 and 3, W. Jacob. 2, G. W. Greenhill. *hc*, F. E. Arter, Barham. *c*, W. A. Beckles.

Ducks.—*Rouen*.—1, F. Cheeseman. 2, M. Sandford, Martin, Dover. 3, W. Jacob. *hc*, J. Harvey, jun., Thanington.

Ducks.—*Any variety*.—1, R. S. S. Woodgate, Fenbury, Tunbridge Wells. 2, A. J. Dowle, Dover (Muscovy). *c*, T. Goodwin, Maidstone (Muscovy).

Selling Class.—*Any variety*.—1, G. Mills, Dover (Golden-pencilled Hamburghs). 2, J. Body, Wittersham (White Dorking). 3, W. A. Beckles (Light Brahmas). *hc*, W. Taylor, Maidstone (Silver-spangled Hamburghs); M. Sandford (Black-breasted Red); W. S. Marsh (Dark Brahmas). *c*, G. Wise, Preston, Faversham; T. G. Ledger, Folkestone; W. Hamilton, Sandwich (Cochin-China and Spanish); Miss E. J. N. Hawkers (Silkies); W. Foster (Black Red Game); F. Cheeseman (Silver-Grey Dorkings). *Hens*.—1, W. Dring (Houdans). 2, J. Jeken (Black Red). 3, Rev. F. T. Scott (Light Brahmas). *hc*, W. Taylor (Silver-spangled Hamburghs); S. Smith, Walmer (Andalusian); W. S. Marsh (Rouen Ducks); G. Mills (Golden-pencilled Hamburghs); J. Francis, Hildenborough (Spanish); F. Cheeseman (Silver-Grey Dorkings); Mrs. S. E. Bacon (La Flèche); W. Brown (Spanish).

PIGEONS.

Carriers.—1 and *c*, M. Martin, Canterbury. 2, G. Wise.

Pouters.—1 and 2, M. Martin. *c*, Rev. F. T. Scott, Shepherdswell; M. Martin.

Tumblers.—1, F. Elgar, Sandwich. 2, G. Mills. *c*, H. Pankhurst.

Fantails.—1 and *hc*, M. Martin. 2, G. Mills. *c*, G. Mills; F. Elgar.

Any other Variety.—1, 2, and 3, M. Martin (Black Barbs, White Owls, and Yellow Magpie) Extra 3, J. R. Mansell, Ashford (English Wood Pigeons). *hc*, F. Elgar (Runts and Barbs); M. Martin (Yellow Dragoons, Black Barbs, Yellow Barbs, White Frillbacks, Red Turbits, Russian Spots. *c*, W. S. Marsh (Turbits); T. T. Beeching (Archangel); M. Martin (Blue Turbits, Blue Dragoons, Red Nuns, Black Helmet).

Selling Class.—1, G. Wise (Black Carriers). 2, M. Martin (Blue Turbits). *hc*, W. S. Marsh (Blue Fantails); M. Martin (Black Nuns). *c*, W. S. Marsh (Mottled Trumpeters); F. Elgar (Barbs); M. Martin (Black Barbs, Yellow Tumblers, Red Mottled Tumblers, Black Mottled Tumblers).

Canaries (Any variety).—1, 2, and *hc*, W. W. Sokirk, Dover (Gold-spangled Lizard, Scottish Glasgow Don, Silver-spangled Lizard, Yellow Norwich). 2, J. J. Little (Belgian). Extra, F. S. Pierce, Dover (Belgian).

Judge.—Mr. Tegetmeier.

EPWORTH POULTRY SHOW.

The seventh annual Show was held at Epworth on the 3rd inst., and was in all respects a success. The entries were nearly two hundred more than last year. The birds were arranged under a large tent, and the greatest care was exercised in their management.

In *Game* fowls Black and Brown Reds were first on the list, and the competition was very close. Black Reds were first, and Brown Reds were second. Duckwings came next; the first prize went to adult, the second to young birds. In White and Piles, the cockerel in the first-prize pen was of extraordinary quality, but broken-feathered. There were fourteen single Game cocks, and many of them were excellent. Both the winners were Brown Reds and very close in feather. In *Spanish* the hens were, as a rule, better than the cocks, although the first-prize cock was good in all points. *Brahmas* were a good class. Buff *Cochins* were first in that class, and Partridge second, although the first-named birds were not in the best order. There were but two classes for *Hamburghs*, which we consider a mistake, and although there were some good birds, we were not struck with the general quality. In the Variety class Silver Polands were first, and Crève-Cœurs second.

The classes for single birds were well supported, and in that for single cocks (Game excepted), a very handsome Spanish was first, and a Dorking second; Crève-Cœur, Golden Poland, and Buff Cochin highly commended. The class for single hens of any variety was one of the best in the Show, there being scarcely a bird in the class that was not worthy of a prize. The first prize and cup for the best pen in the Show were awarded to a Golden Poland hen of extraordinarily good quality.

Aylesbury and Rouen *Ducks* were not remarkable, but those of the Variety class were very fine. A pair of Bahamas were first, and Ruddy Shells second.

Bantams were divided into six classes. Black-breasted and other Reds were first on the list, Black Reds winning both prizes. In the class for any other variety of Game, Piles were first, and Duckwings second; and the cup for the best pen of Bantams was awarded to the first-named pen. The Duckwings were very good in colour. In Blacks and Whites both prizes were awarded to the former colour, the Whites being rather poor. The three pens in the Variety class were all Sebrights, which were very good. In the single Bantam cocks a very good Black Red cockerel was first, and a Black second; but in the class for hens both the winners were Game. The first prize went to an almost perfect Black Red, and an oil painting for the best single bird was also awarded it. The second prize was awarded to a good Brown Red. The birds in the Selling class were not numerous, and only of poor quality.

Pigeons were shown in single birds of any sex, and the entries were very good. In Carriers both the winners were cocks, very good in all points; and the cup for the best pen was given to the first-named bird. In Pouters a handsome White was first, and Blue second. Most of the Tumblers were Almonds, and the competition very close. In Jacobins both the winners were Red, and an excellent Black was highly commended. Fantails were most exquisite in carriage, size, and tail, the winners being very small. Turbits were also good, the first prize going to an excellent Blue cock, and the second to a very good Red hen. Magpies were in good form; a neat Yellow was first, and Black second. Antwerps were a mixed class, both Long and Short-faces competing together. The first was a nice Silver Dun Short-face, and the second a Red Chequer. The Variety class was well filled; a Mottle Trumpeter was first, an Isabel second, a White Dragoon third, and Blue fourth.

Of *Cage birds* there was not a large entry, no great inducement being offered, but there were some good birds shown among the Canaries, Goldfinches, and Linnets.

In quality the *Rabbits* were very good; the first-prize Lop-eared buck measured 21 and 4¾ inches, easy measurement,

all the rest running close in points. In does the first was 21½ by 4¾ inches; and one of the best in the Show was a Sooty Fawn doe only four months old, and 21 by 4¾ inches; most of the others also measured well. Both the Himalayan and Silver-Greys were as perfect as could be, and shown in fine condition.

GAME.—*Black-breasted and other Reds.*—1, E. Aykroyd, Eccleshill. 2, C. Chaloner, Whitwell, Chesterfield. *hc*, J. W. Will, Errol; C. Chaloner. *c*, F. Sales & Bentley; H. E. Martin, Sculthorpe. *Duckwings.*—Cup and 1, C. Chaloner. 2, C. Travis, Thurgoland, Sheffield. *c*, F. Sales & Bentley, Crowle. *White and Piles.*—1 and 2, F. Sales & Bentley. *c*, H. E. Martin. *Any variety.—Cock.*—1, E. Aykroyd. 2, C. Chaloner. *hc*, G. P. Tricker, Fakenham (Duckwing); J. C. Coupe, Doncaster.

SPANISH.—1, J. Powell, Bradford. 2, J. Walker, Bradford. *hc*, J. F. Sillitoe, Wolverhampton; T. C. & E. Newbitt. *c*, G. Hurst, Longton.

BRAHMAS.—*Light or Dark.*—1 and *c*, H. Lacy, Hebden Bridge. 2, H. Beldon, Goitstock. *hc*, W. Harvey, Sheffield.

COCHINS.—1, H. Lacy. 2, J. White, Warlahy. *hc*, H. Lacy; H. Beldon.

HAMBURGHS.—*Gold or Silver-spangled.*—1, H. Beldon. 2, Ashton & Booth, Mottram. *Gold or Silver-pencilled.*—1 and 2, H. Beldon.

ANY OTHER VARIETY.—1, H. Beldon (Polands). 2, C. H. Smith, Eatcliffe-on-Trent (Crevе-Cœurs). *hc*, J. White (Grey Dorkings); W. Harvey (Dorkings).

ANY VARIETY EXCEPT GAME.—*Cock.*—1, G. Hurst (Spanish). 2, W. Harvey. *hc*, Mrs. Cross, Appleby Vicarage, Brigg (Crevе-Cœur); J. W. Taylor (Buff Cochin); H. Beldon. *c*, E. J. Poer (Crevе-Cœur). *Hen.*—Cup and 1, H. Beldon. 2, T. C. Addey, Askern. *hc*, F. Sales & Bentley; R. H. Ashton, Mottram; W. Bearpark; J. Powell (Black Spanish); J. Thresh, Bradford (Spanish); C. Chaloner (Game).

GAME BANTAMS.—*Black-breasted and other Reds.*—1, G. Holmes, Driffield. 2, T. C. & E. Newbitt, Epworth. *hc*, Tomlinson & Kirkby. *Any other Variety.*—Cup and 1, T. C. & E. Newbitt. 2, Hudson & Burnip, Epworth (Duckwings).

BANTAMS.—*Black or White.*—1 and *hc*, R. H. Ashton. 2, H. Beldon. *Any other Variety.*—1, H. Beldon. 2, J. Watts, King's Heath, Birmingham. 3, W. Harvey.

BANTAM.—*Any Variety.—Cock.*—1, J. Barlow, Monkwearmouth. 2, R. H. Ashton. *hc*, Master W. Sales, jun., Crowle. *Hen.*—1 and 2, T. C. & E. Newbitt. *hc*, R. H. Ashton (Mandarin); Epworth.

DUCKS.—*Aylesbury or Rouen.*—1, W. H. Robson, Reston, Louth. 2, J. White. *Any other Variety.*—1 and 2, W. Binns, Pudsey (Ruddy Shell and Bahama). *hc*, R. H. Ashton (Mandarin).

SELLING CLASS.—1, G. Holmes. 2, J. Mills, Healey, Rochdale.

PIGEONS.

CARRIER.—Cup and 1, G. J. Taylor. 2, E. Horner, Harewood, Leeds. *hc*, R. Dawson, Beverley; E. Horner.

POUTER.—1, W. Harvey. 2, E. Horner. *hc*, G. J. Taylor, Huddersfield; E. Horner.

TUMBLER.—1 and 2, E. Horner. *hc*, G. J. Taylor; W. Harvey; H. Yardley.

JACOBIN.—1, W. Kitchen, Blackburn. 2, R. G. Sanders, Beverley. *hc*, R. G. Sanders; W. Croft, Killinghall, Ripley; T. Waddington, Feniscowles, Blackburn.

FANTAIL.—1 and 2, J. F. Loversidge, Newark. *hc*, J. Hairsine, Hull; A. A. Vander Meersch, Tooting; H. Yardley. *c*, R. Jennings.

TURBIT.—1, G. J. Taylor. 2, W. Croft. *hc*, J. W. Watson, Bradford (2); A. A. Vander Meersch; W. Kitchen.

MAGPIE.—1, J. Hairsine. 2, A. A. Vander Meersch. *hc*, A. A. Vander Meersch; E. Horner.

BARB.—1, W. Harvey. 2, E. Horner. *hc*, G. J. Taylor; T. Waddington. *c*, H. Yardley.

ANTWERP.—1, H. Yardley. 2, W. Harvey. *hc*, J. Hairsine; Mrs. Entwisle, Cleckheaton (2); E. Horner; C. F. Copeman, Birmingham.

ANY OTHER VARIETY.—1, E. Horner. 2, Mrs. Entwisle (Silver Owl). 3, W. G. Waters. 4, T. Waddington.

SELLING CLASS.—1, R. G. Sanders (Jacobins). 2, J. E. Crofts. *hc*, J. E. Crofts; C. Gravil, jun., Thorne.

CAGE BIRDS.

CANARY.—*Yellow or Buff.*—1, G. Shelling, Hull. 2, J. Woolas, Gainsborough. *hc*, T. Green, Gainsborough (2); R. Harrap, Doncaster. *Green or Variegated.*—1, J. J. S. Clark. 2, G. Shelling. *hc*, G. Shelling; J. Woolas. *c*, Miss C. Robinson, Chester. Dawes; T. Green.

LIZARD.—*Gold or Silver-spangled.*—1, T. Green, Gainsborough.

GOLDFINCH.—1 and *hc*, J. Boyes. 2, Master W. Slight, Epworth.

LINNET.—1, W. Temperton, Burnham. 2, W. Balmforth, Epworth. *vhc*, Miss R. A. Beckett, Epworth. *hc*, C. James, Epworth. *c*, G. I. Blaydes, Epworth; Mrs. T. Kirk.

ANY OTHER VARIETY.—1, Miss Allen, Epworth (Australian Grass Parakeet). 2, J. Woolas. 3, G. Shelling (Goldfinch Mule). *hc*, D. Salisbury, Epworth; G. Shelling (Goldfinch Mule; J. Woolas; G. Lindley, Epworth.

RABBITS.

LOP-EARED.—*Buck.*—1, A. H. Easten, Hull. 2, J. J. S. Clark, Doncaster. *hc*, W. Dawson; H. Cawood, Thorne. *Doe.*—1 and 2, H. Cawood. *hc*, A. H. Easten, *c*, J. J. S. Clark; Mas er S. M. Peace, Thorne; R. Longcott.

HIMALAYAN.—1 and *hc*, Master S. M. Peace. 2, A. H. Easten.

SILVER-GREY.—1, R. H. Glew, Epworth. 2, S. G. Hudson. *hc*, G. Woodley, Thorne (2).

JUDGES.—*Poultry and Pigeons:* Capt. Heaton, Worsley, Manchester; Mr. E. Hutton, Pudsey, Leeds. *Cage Birds:* Mr. E. Hutton. *Rabbits:* Mr. E. Hutton; and Mr. J. Spinks, Gainsborough.

SILVER DRAGOON BARS.

I WAS pleased to see Mr. Percivall so fully upholding what I have stated about his winning birds as quite correct. After this I think it useless to say more than there are no black-barred birds now any more than there were then, and that a Silver should be a Silver, and not a washed-out Blue with Kite-coloured bars, the same as the second-prize Palace and Birmingham birds were.

Mr. Percivall says that Silver Dragoons should decidedly have black bars, and wherever he may be called upon to judge he will certainly endorse such opinion by awarding prizes to black-barred Silvers in preference to their brown-barred brethren, with which colour Mr. Percivall himself has won since 1866 all his first prizes at Birmingham, and, consequently, earned his name by brown-barred birds. Consoling this to the many fanciers who have purchased brown-barred birds of Mr. Percivall solely through his success in exhibiting! Fortunately Mr. Percivall is not called upon to adjudicate at many shows.—H. ALLSOP.

MR. W. J. W. PASS, of Bury, says it is quite absurd of me saying the beak of a Dragoon should be 2 inches, and, moreover, without foundation. I challenge him to show the best Dragoon, any colour, with a 2-inch beak, either a young or old bird, for any amount, and beg to inform him, if he has not any, I have. —JOHN G. DUNN.

[We have omitted all you wrote about other parties; they can use their own pens.—EDS.]

SILVER DRAGOONS.

THE pair of Silver Dragoons, or, as they have been called, "washed-out Blues," by those who, I presume, never saw a genuine Silver before, were bred by me. I have been an admirer of Blues and Silvers from boyhood. Thirty-four years have elapsed since I commenced with two pairs of Blue Dragoons, which I purchased from an old Spitalfields weaver. He exhibited six Blues and two Silvers at a fancy house, then called "The Bowl and Pin," in St. Luke's. I assure you they were different from those termed Dragoons at the present day.

Some few years later I entered a sweepstakes fly from Gravesend to London, and purchased for the race, from a shop in Spitalfields, a young Silver Dragoon cock. He had a splendid broad black bar. He was the first winner, and I flew him many matches afterwards. On two occasions he flew the distance (twenty-four miles) to where I resided under twenty-five minutes. From this cock and a Blue hen are the strain of my present Blues and Silvers. By referring to *Bell's Life*, 4th of September, 1853, you may see a challenge for two young Silver Dragoons, bred from the above-named Silver cock, to fly against anyone from Gravesend to London for £5 a-side.

The reason why I mention these facts is to show that my birds are thorough-bred Dragoons, not Toys. I have at this time a Silver cock sixteen years old; he has a bar equal to any Blue, and has been the winner of twenty-six out of thirty-eight matches. Mr. Graham's Silver cock is bred from him and a Blue hen. The Silver hen that he has matched to him is from a Blue cock and a Silver hen.

Dun-barred Silvers have been exhibited in consequence of the genuine Silver becoming nearly extinct. When the Antwerp came into notoriety, upwards of twenty years since, the Dragoon-fanciers crossed Dragoons with the Antwerp, regardless of colour or beauty, to obtain speed, and in this way deteriorated the old English Dragoon. To replace them, the best Blues that could be procured were crossed with the Carrier breed: hence the dun bar. I have been far and near to see better Silvers than those I possess, but have never had my wish gratified.—W. GIBSON, *Barnsbury.*

EVEN-MARKED CANARIES AND MULES.

HUDDERSFIELD, Halifax, Dewsbury, Bradford, Bacup, Blackburn, Burnley, Rochdale, and Oldham are the principal places having Canary societies, and which have stated rules from which the marked birds have to be judged. I enclose one of their schedules.

[Extract from Bacup Rules.—"3.—All birds to be shown in cages with flat tops. Members residing within three miles will have to pay 3*d.* each meeting night, whether they attend or not, and all members residing within three miles will have to let their birds remain on the stage until nine o'clock, whether they are borrowed birds or not.

"4.—The Belgian birds to be judged by the following points—viz.:

1st. Small flat head.	4th. Good back and well filled.
2nd. Long projecting neck.	5th. Goodness of feather.
3rd. High square shoulders.	6th. Richness of colour.

"5.—A bird with clear beak, legs, and toe nails, to have the preference of a bird with marked ones.

Mottled birds—

1st. Equally marked on each eye, wing, and tail.
2nd. With a clear run from the beak to the end of the tail.
3rd. Goodness of feather and richness of colour.

"6.—The Chintz and Black Mottled birds to form one class, the preference to be given to the Black Mottled."—EDS.]

If, as Mr. Wallace stated, the cap-marked birds emanated from these societies, it would appear as if they had arrived at the same opinion as myself; for with the exception of the tail marks being "now" of not so much importance as formerly, their rules are the same as stated above; no cap-marked bird is allowed to compete, for does not the second rule distinctly bar it by stating "with a clear run from the beak to the end of the tail?" which plainly means that a cap, a saddle, and an entirely dark tail are all to be considered as foul.

Mr. Wallace is probably not aware that Mr. Calvert was left entirely to his own opinion when giving his awards at the Middlesbrough Show where Mr. Beloe claimed the second-prize (cap-marked) even-marked bird; and as the schedule gave no standard of rules for judging, the Committee were powerless in the matter, although I believe they were of opinion that the cap-marked bird was not even, and consequently in its wrong class. —R. HAWMAN.

BATH AND WEST OF ENGLAND SOCIETY.—The prize schedule of this Show, to be held at Dorchester on the 3rd of June, is most

liberal both for poultry and Pigeons. In all the larger breeds the sexes are shown separately, which gives every opportunity of success to those breeders whose stock is limited. The Ducks, Geese, Turkeys, and Bantams are shown in pairs. Independently of prizes varying from £3 to 10s., there are offered no less than six silver cups of the value of £5 each. It is with pleasure we refer to the admirable arrangements that have marked this Society,s efforts for the accommodation of both the poultry and Pigeons for so many years past, and we need only add that this division of the Show is still under the able superintendence of the same Stewards, whose prior efforts have been so satisfactory to all competitors. We may also briefly allude to the fact, that success in winning prizes at this earliest show of the season is most conducive to the rapid disposal of surplus stock throughout the current year. No less than seventeen classes are devoted to Pigeons, the prizes offered being £1 and 10s. All entries must be made on or before the 13th of the present month.

OUR LETTER BOX.

GLASS-ROOFED POULTRY HOUSES (*L. B.*).—We find glass in a roof very objectionable in the summer on account of the heat when the sun is on it. We have only one, and were it not for the light we would do away with it at once. We give our fowls all the light we can.

LIGHT BRAHMAS—COST OF FEEDING (*E. W.*).—The correct marking of Light, not "White," Brahmas is to have striped hackle, black flights and tails. They should also have pea combs. It would do no harm to them if you had Houdan or Black Hamburgh hens running with them, but there are sometimes curious results from such companionship. We consider ourselves well served when the expense of our fowls does not exceed 2*d.* per week per head. Potatoes, rice, and bran we consider bad feeding. You will find plenty of Pigeon advertisements in our advertising columns.

FOWLS DYING MYSTERIOUSLY (*E. C.*).—Everything would seem to indicate that poison is at work among your fowls. It would be wrong to suppose that malice has to do with it. It is not an uncommon thing for emptyings of corn that has been dressed with arsenic for sowing to be thrown out. We lately had a case where all the fowls in the stableyard died as you describe, and it was found the "nasty doctor's stuff" used for cleaning boot-tops was thrown out, and the fowls drank it. Some such solution should be found in your case. Remove some of the fowls to a cottage run, and see if the mortality continues.

GAME BANTAM COCK'S HACKLE (*T. D. T.*).—A Game Bantam cock should have very little hackle—not enough to cover or to reach the shoulders. Provided there is nothing like hen feathers, he cannot have too little. Where there is a very full hackle there is usually "soft feather," and that is a serious fault. A Game Bantam cock should be scantily feathered in body and tail; the latter should be carried rather sloping. The plumage should be very hard in hand, and the wings carried clipped-up close to the body.

FEATHER-EATING (*Puzzled Reader*).—We are as much puzzled as you are. There is no doubt the bare necks are caused by the other birds pecking out the feathers. This is common enough when fowls are kept in confinement, but we have never seen it where they have the run of fields. We have never had it in Dorkings or Brahmas. Houdans were the first in our experience, then Spanish, then Malays. We believe it arises in the first place from a disordered condition of body, the bird seeking for something it cannot find. While engaged in the search, a bare spot on a bird is seen and pecked at directly. Every bird, even a Dove, is carnivorous, and as soon as the skin is removed and blood is seen, they go to work *con amore*, and will not leave off. Our cure has always been to remove the birds with bare spots till the feathers were grown. When they return in full plumage they are safe. It is often the work of one hen, and if she is removed the mischief ceases. We believe the habit becomes a second nature, and the cannibal becomes a fowl-eater. We should not, therefore, ever allow the peccant hen to return to the walk. We have found benefit only from one treatment, which is a copious supply of lettuces, especially if they are going to seed. The best treatment for the bare spots is to rub them often and freely with sulphur ointment.

PIP IN CHICKENS (*J. G.*).—No nostrum that requires to be administered is of any use to young chickens. The disease you complain of is cured by giving only camphor julep to the parent. The same treatment is also a preventive. It has the double merit of being cure and preventive.

POULTRY IN A GARDEN (*E. H. B.*).—We have been for many years advocates for putting chickens in a kitchen garden. We have had our own full of them. The hens were put under their rips on the gravel paths, and the chickens were allowed free run. The first day they are strong enough to do mischief they were moved away into a meadow. We never did so well in chickens and vegetables. "Our poverty" compelled us to keep two officials in one person—gardener and poultryman. He was sure one helped the other, we believed and we believe him. Since then we have more poultry and two men. The gardener is eloquent on the score of a few chickens that cost more than they are worth; and the poultryman says, that half the food he supplies to the house would buy all the vegetables grown in the garden.

> "Sirs," cried the umpire, "cease your pother,
> The creature's neither one nor t'other.
> When next you talk of what you view,
> Think others see as well as you;
> Nor wonder that you find that none
> Prefers your eyesight to his own."

BRAHMA'S EGG (*J. Tylor, Montrose*).—The egg was smashed, and the liquid contents escaped round the lid.

GREAT HAINWOOD SHOW (*S. F.*).—As it was not advertised, we conclude that it was merely a local show.

PIGEON RACE.—Can you give me any information about the "All England Pigeon Race" that is to be flown from the Palace on the 20th of June? How can people living in the north compete with people living in or about London? For instance, we enter our birds for the race to fly two hundred or three hundred miles, our birds cannot be expected to fly at the same rate as they would had they only to fly fifty miles or less. If the birds fly a mile a minute for fifty miles they cannot fly at the same rate for two hundred or three hundred miles. How are the birds to be timed from leaving the Palace to their respective homes? Please to give this information, with full particulars, as early as you can.—H. I. R. L.

[We shall be obliged by some of our readers sending us the information asked for.—EDS.]

PIGEONS FIGHTING (*W. Davis*).—Pigeons have odd ways, which are apt to puzzle a beginner. As no doubt you wish to become fully acquainted with them and grow into a good fancier, we strongly advise you to obtain Brent's "Pigeon Book" from our office, price post free 1*s.* 7*d.*, and study its pages. The cock has some good reason of his own for what he does. It was not a good plan to shut him up, as the hen cannot long sit alone on eggs. She requires exercise and food, and it is the nature of these birds to share the sitting between them. You will lose these eggs, but have plenty of young ones during the coming summer. Most likely the cock was only driving the hen to nest, and not really fighting her. Feed them on beans or barley for a change, as Indian corn does not seem to suit them.

FLOOR OF HUTCH (*Rabbit*).—Zinc is an excellent covering for the floor of a Rabbit hutch; but being cold, especially in winter, should have a frame of wood lattice (three-quarter-inch), for the dung to drop through, the frame an inch from the zinc floor; and when this is on an incline of an inch towards the back all can be soon washed away when the lattice frame is removed, which is better in two pieces for that purpose. Let all be dry before the sawdust and oat straw are thrown in for bedding. A good breed for home consumption is the Belgian Hare Rabbit. It attains a weight of from 7 to 10 lbs. A cross between that and the Patagonian variety is still better.

METEOROLOGICAL OBSERVATIONS,

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude 111 feet.

DATE. 1872. May.	A.M. Barometer at 32° and Sea Level.	A.M. Hygrometer. Dry.	A.M. Hygrometer. Wet.	A.M. Direction of Wind.	A.M. Temp. of Soil at 1 ft.	IN THE DAY. Shade Temperature. Max.	IN THE DAY. Shade Temperature. Min.	IN THE DAY. Radiation Temperature. In sun.	IN THE DAY. Radiation Temperature. On grass	Rain.
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 1	29.454	59.1	50.8	E.	51.0	71.9	38.7	115.7	36.1	—
Th. 2	30.207	61.2	55.0	W.	53.5	74.3	39.7	115.3	37.3	—
Fri. 3	30.129	61.4	56.4	S.W.	54.0	66.3	46.8	101.2	42.5	—
Sat. 4	29.619	56.3	48.6	S.W.	54.0	62.5	47.6	113.8	45.8	0.100
Sun. 5	29.576	53.5	48.1	S.W.	53.3	63.3	47.9	115.0	48.0	0.050
Mo. 6	29.596	52.0	48.7	S.W.	53.1	56.6	40.1	102.7	39.0	0.220
Tu. 7	29.414	54.4	48.3	S.W.	53.2	59.4	47.2	108.6	40.2	0.150
Means	29.849	56.6	50.8		53.9	64.9	44.0	110.4	41.3	0.608

REMARKS.

1st.—Very fine, bright and beautiful all day.
2nd.—Cloudy morning; but warm, sunshiny, and agreeable after throughout the day.
3rd.—Fine all day, but much cooler after the morning.
4th.—Fine morning; first shower 1.20 P.M., two others after.
5th.—Morning fine, looking very rain-like in the distance between 4 and 5 P.M., shower here about 5.30 P.M., fine after but cold.
6th.—Frequent but rather heavy showers throughout the day.
7th.—Showery morning, short thunderstorm commencing ten minutes before noon; fine afternoon and evening.

The week on the whole somewhat warmer than the average, especially the earlier part. The last few days stormy with hail-showers.—G. J. SYMONS.

COVENT GARDEN MARKET.—MAY 8.

ALTHOUGH the attendance here is not so large as usual at this season, a fair average amount of business is being done, and most of the out-door produce is equal to that of former seasons. Complaints reach us of the effect of the late frosts, but Gooseberries, Broccolis, and such articles as are brought here do not show it much. Importations are heavy, comprising Apricots, Cherries, the usual sorts of salading, Artichokes, Carrots, and Turnips. New Potatoes are in much better supply this week.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples..... ½ sieve	3	0	to 6	0	Melons..... each	8	0	to 15	0
Apricots..... doz.	3	0	3	0	Nectarines..... doz.	0	0	6	0
Cherries..... per box	3	0	5	0	Oranges..... ₱100	4	0	10	0
Chestnuts..... bushel	10	0	20	0	Peaches ..... doz.	18	0	40	0
Currants..... ½ sieve	0	0	0	0	Pears, kitchen..... doz.	0	0	0	0
Black..... do.	0	0	0	0	dessert..... doz.	0	0	0	0
Figs..... doz.	15	0	0	0	Pine Apples..... lb.	6	0	12	0
Filberts..... lb.	0	6	1	0	Quinces..... doz.	0	0	0	0
Cobs..... lb.	0	6	1	0	Raspberries .....lb.	0	0	0	0
Grapes, hothouse... lb.	10	0	15	0	Strawberries..... ₱lb.	6	0	15	0
Gooseberries..... quart	1	0	1	6	Walnuts..... bushel	10	0	25	0
Lemons..... ₱100	7	0	10	0	ditto..... ₱100	1	0	2	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes..... doz.	4	0	to 6	0	Leeks..... bunch	0	2	to 0	0
Asparagus..... ₱100.	4	0	8	0	Lettuce..... doz.	1	0	2	0
Beans, Kidney.... per 100	1	6	2	6	Mushrooms..... pottle	1	0	2	0
Broad..... bushel	0	0	0	0	Mustard & Cress..punnet	0	2	0	0
Beet, Red..... doz.	1	0	3	0	Onions ..... bushel	2	0	4	0
Broccoli..... bundle	0	9	1	6	pickling..... quart	0	6	0	6
Brussels Sprouts..½ sieve	0	6	1	0	Parsley per doz. bunches	3	0	4	0
Cabbage..... doz.	1	0	1	6	Parsnips..... doz.	0	9	1	0
Capsicums..... ₱100	0	0	0	0	Peas..... quart	3	0	5	0
Carrots..... bunch	0	6	0	0	Potatoes..... bushel	4	0	5	6
Cauliflower..... doz.	2	0	3	0	Kidney..... do.	3	0	5	0
Celery..... bundle	1	6	2	0	Radishes.. doz. bunches	0	6	1	0
Coleworts.. doz. bunches	2	0	4	0	Rhubarb..... bundle	0	3	1	6
Cucumbers..... each	0	5	1	6	Savoys..... doz.	0	0	0	0
pickling..... doz.	0	0	0	0	Sea-kale..... basket	0	0	0	0
Endive..... doz.	2	0	0	0	Shallots ..... lb.	0	4	0	0
Fennel..... bunch	0	3	0	0	Spinach..... bushel	3	0	4	0
Garlic..... lb.	0	3	0	0	Tomatoes..... doz.	3	0	6	0
Herbs..... bunch	0	3	0	0	Turnips..... bunch	0	3	0	9
Horseradish..... bundle	2	0	4	0	Vegetable Marrows..doz.	0	0	0	0

WEEKLY CALENDAR.

Day of Month	Day of Week.	MAY 16—22, 1872.	Average Temperature near London.			Rain in 43 years.	Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock after Sun.	Day of Year.
			Day.	Night.	Mean.	Days.	m. h.	m. h.	m. h.	m. h.	Days.	m. s.	
16	Th	Meeting of Royal Society, 8.30 P.M.	66.0	43.3	54.1	15	10 af 4	45 af 7	45 11	3 af 2	9	3 51	137
17	F	Oxford Easter Term ends.	65.7	41.0	53.4	16	8 4	46 7	after.	21 2	10	3 50	138
18	S	Oxford Trinity Term begins.	66.2	42.2	54.2	17	7 4	47 7	10 2	37 2	11	3 48	139
19	Sun	WHIT SUNDAY.	67.0	42.7	54.9	14	5 4	49 7	37 3	52 3	12	3 45	140
20	M	WHIT MONDAY.	66.9	43.4	55.2	20	3 4	50 7	45 4	8 3	13	3 42	141
21	Tu	Meeting of Zoological Society, 9 P.M.	66.3	44.7	55.5	19	2 4	52 7	9 6	26 3	14	3 38	142
22	W	Royal Botanic Society's Show opens.	65.4	42.4	53.9	19	0 4	53 7	34 7	46 3	○	3 34	143

From observations taken near London during forty-three years, the average day temperature of the week is 66.3°; and its night temperature 42.8°. The greatest heat was 89°, on the 22nd, 1847; and the lowest cold 25°, on the 22nd, 1867. The greatest fall of rain was 0.76 inch.

GROWING FERNS IN CASES.

EASY and pleasing as Ferns generally are to cultivate, we seldom see them in a satisfactory state in Fern cases—failure seems to be the rule rather than the exception. I have often seen cases nicely fitted up, and in a short time after having been sent home they were returned with all the once-healthy little plants appearing as though they had passed near a fire, or been exposed to the fiercest rays of the sun, or to some similar bad treatment. In other instances I have seen cases returned to be remodelled, some rank-growing Lycopod having been allowed to monopolise the whole case, and consequently to choke the weaker-growing inmates. I may add other instances where, from want of a sufficient circulation of air, the plants have dwindled and become weak; and, to assist in their rapid extinction, a little cobweb-like fungus has developed itself amongst them; then all the inmates of the case soon became extinct.

All these failures are the results of mismanagement. In the first instance the failure arises from a want of proper attention in watering, many persons supposing that Ferns in cases require little or no watering. Others, on the contrary, drench them with water. I need hardly say that both of these modes of treatment will ruin in a short time the best-arranged case of Ferns.

Let me here tender my advice with respect to watering. Provide yourself with a very small pot or can, with a small, long, slender spout that will throw a stream of water about the size of a straw. An oil-can that is used in oiling engines is what I generally employ. This, having a long slender spout, can easily be passed amongst the Ferns without injury to their fronds. Ferns in cases should never be watered over the foliage. Look the case over every week, or oftener, certainly not less frequently. It will be found that the plants in the elevated portions of the rockwork in the case will require most attention in watering, but those in the lower parts will seldom require any water, as that supplied to the upper parts will drain to the lower. Perfect drainage is at all times necessary to carry off all stagnant water.

In fitting up a case of Ferns care should be taken to select those only which are suitable for growing in cases. If the case is of large size the Ferns may be selected accordingly, but I would not advise the coarse-growing kinds being used under any circumstances, as they soon become too large for their place, and are, consequently, unsightly. The medium and smaller-growing kinds are most suitable.

Place the plants in positions where they can develope their fronds without crowding each other; nothing looks more unsightly than a confused mass of fronds. Place the drooping kinds in an elevated position, so that they may throw their fronds out and hang down without any obstruction. If Lycopods are used—and they generally give a finish to the case—do not allow them to overrun the case, but keep them within bounds, otherwise they will soon destroy the Ferns with which they come in contact.

Wire crooks are very useful in the culture of Ferns in cases, for with them the fronds can be arranged to much greater advantage than they could otherwise be; you can ply them to any desired shape, and can then place them where they will be seen to the best advantage.

In instances where the plant produces too many fronds, so that if all were left they would become crowded and confused, remove enough of the surplus fronds when they are young that those left may have a fair chance to develope.

Air has a great influence on success or failure in growing Ferns in cases; manufacturers nine times out of ten never provide ventilators, but simply box the Ferns up with, perhaps, a few perforated holes in the top of the case. This is decidedly wrong: Fern cases should be provided with both top and bottom ventilators, which should to a small extent be always open, and ought likewise to be moveable, so that air may be admitted in varying quantities as required. A free circulation of air is as necessary for the well-being of the plants in a Fern case as those in a greenhouse. Although Ferns for the most part like shade and moisture, they will not thrive well in a stagnant atmosphere; therefore it is highly necessary that a free circulation of air should be provided. It is true that too much air may be given, but enough should always be admitted to keep the glass just clear, and this will prevent the appearance of that disagreeable cobweb-like fungus which disfigures the fronds. Sufficient air will render the plants healthy and luxuriant, and they will never have a dwindled appearance, which they would present if kept in a confined ill-ventilated atmosphere.

The glass of the Fern case should be wiped occasionally, and if the foregoing directions be attended to the case will always present a neat and pleasing aspect, and will amply repay the trouble expended on it.—T. B.

MARÉCHAL NIEL ROSE AT OAKWOOD HOUSE, MAIDSTONE.

IN the spring of last year I described (vol. xx., page 334) a very fine specimen of Maréchal Niel Rose in the garden at Oakwood House, near Maidstone, the residence of L. D. Wigan, Esq. A subsequent visit made in the past April enabled me to see this fine Rose still further extended, and in beautiful condition. I have already stated that it is planted in a rather confined corner in a conservatory attached to the mansion, and is trained in a loose and easy manner underneath the glass roof, where it covers a space of upwards of 24 feet by 20, and affords the necessary shade to Azaleas and other flowering plants beneath. The roof is a very light one, the conservatory being a modern structure, and it would be difficult to conceive a more fitting place for this fine Rose; for, as is well known to all who have grown it, the weight of the blooms turns them downwards when they attain their full

size. Here we have a perfect canopy of Roses in all stages from the incipient bud to the fully expanded bloom, and emitting that delicate perfume which the lovers of Tea Roses so much delight in, and which can be discovered ont of doors 50 or 80 yards away from the conservatory.

I did not attempt to count the blooms, but at my request Mr. Piggott, the able gardener at Oakwood, gave me two of them taken at random from the most accessible part of the plant; and as measuring flowers is, in my opinion, a very unsatisfactory way of describing their size and properties, I thought it better to adopt the plan that is making its way very rapidly into mercantile transactions, and have it weighed. I fancy Rose-growers of the advanced school will smile at my mode of describing the merits of a Rose, but will they tell me any better way of explaining what a really good one is that possesses all the other recognised points, and which cannot be placed before the censor? To the scales Maréchal Niel was consigned, and one of the two blooms, including about 6 inches of stalk, was found to weigh 1¼ oz. avoirdupois, and when that was cut off it was 1⅛ oz.; the other Rose was slightly over an ounce. I by no means assume this to be extraordinary, but it is certainly good when it is understood that the blooms were taken from a plant heavily loaded with flowers. Perhaps some one who has this Rose growing under similar circumstances will favour us with the weight of the ordinary blooms. At the same time flowers which are produced later in the season (if the first for that season), are likely to be larger and finer. Those at Oakwood were gathered on April 24th.

I found that since my last visit the shrubs had made considerable progress, and some fresh features had been introduced in this naturally fine place. The mansion is backed and flanked with fine old Oaks, which have given at once a clothed appearance to a modern dwelling. A large portion of the dressed grounds was originally a quarry, and the *débris* was thrown into irregular mounds. Some of these have been judiciously left, while the face of the unwrought quarry has been converted into rockwork. Winding walks skirt its base, and every now and then present fresh objects to the view; a sharp turn in one place is made round a projecting boulder, at another the pathway leads underneath a rustic arch, while climbers at places hang over the natural rock on the one side, or the bank is planted on the other with masses of shrubs, each kind separately, but care has been taken to leave important distant views clear of all obstruction. Some flower-beds had also been made, and will doubtless contribute to render this pleasantly situated abode one of the most attractive of its class. In addition to the enlargement of the pleasure grounds, I found that the park was being increased by some land, previously in tillage, being laid down in grass.—J. Robson.

DWARF KIDNEY BEANS FOR FORCING.

From the illustrated advertisements of Canadian Wonder Kidney Bean, I was led to consider it just what we wanted in a Kidney Bean for forcing—one with the characteristics of the Newington Wonder—namely, prolific, with round fleshy pods four times the size of those of that variety. I procured some seed, and have tried it as a forcer with very satisfactory results.

I sowed twenty-four 11-inch pots with eight beans in each, on the 26th of February, and a like number of Sir Joseph Paxton, an improved Six-weeks with yellow seeds, and it is a kind I hitherto liked the best of all for forcing. I fancy it has some of the blood of the Long-podded Golden Dun or Yellow Canterbury; but whether or no, Sir Joseph Paxton is a most excellent Bean, and so is Yellow Canterbury. I think I have forced all the kinds of Kidney Bean, and therefore have named those which I have found the best; and though there are others which will pass muster, they have in a greater or less degree the drawbacks of a forcing Kidney Bean—*i.e.*, thin flat pods, which are too frequently short, curled-pointed, all neck and point, and the seeds too prominent at an early stage. I must add Newington Wonder, a most prolific sort, and the only one that is fit for cooking whole.

Canadian Wonder has a bean longer and flatter than Negro, but in other respects it is of the same type, and of a light reddish maroon colour. In style of growth it resembles Negro, is branching, and rather long-jointed—in fact, is a free-growing Kidney Bean. Compared with Sir Joseph Paxton, its growth is half as strong again, and it is half as large again in foliage. Canadian Wonder is 1 foot 9 inches high; Sir Joseph Paxton 15 to 17 inches above the rims of the pots. Sir Joseph Paxton comes in at the earliest ten days before Canadian Wonder, and the latter had pods fit to gather at the close of the second week in April, from the sowing made at the time above named. The produce is about equal as regards the number of pods, or one thousand from the twenty-four pots of each, but the pods of Canadian Wonder have on an average twice the substance of those of Sir Joseph Paxton. Five hundred of the latter will go in a box that will not hold 250 of the former. It is, therefore, a superior sort as regards produce, whilst its quality is excellent, the pod being very fleshy, with little heel or nose. It is not, however, a round-podded kind like Newington Wonder, but has a flat yet thick pod. In this respect only, I am disappointed with it. I shall grow it along with Sir Joseph Paxton, as I cannot dispense with the latter on account of its earliness and certainty, but after the middle of February I shall chiefly grow Canadian Wonder.

My mode of forcing Kidney Beans is old enough, nevertheless it is not yet superseded. I grow them planted out in pits, also in pots, and the latter mode is by far the better. For early production I prefer 10-inch pots, but after February 11-inch or even 12-inch pots. The pots are not excessively drained: three or four rough pieces of crocks are placed at the bottom, and over these 2 or 3 inches of the rougher parts of the compost, which consists of loam from rotted turves, with the addition of a third part of leaf soil, or a fourth part of decayed manure. The pots are filled to within 4 inches of the rim, and the top inch is of fine soil. Six beans are placed in a 10-inch pot, five round the sides equidistant, and one in the centre; nine beans in an 11-inch pot, six round the sides and three in the centre; and they are thrust into the soil to the first joint of the middle finger. The pots are placed in a house with a temperature from fire heat of 55° to 60° at night, and 65° to 70° by day, with a rise of 20° from sun, air being given at 75°, and increased with the temperature.

They should be placed in a light position from the first, and cannot be too near the glass at any time, so long as they do not touch it. I find when at full growth that they thrive best at 6 to 9 inches from the glass.

When the seed leaves are well developed and level with the rim of the pot, or a little higher, earth up to the rim with the compost abovenamed chopped fine, giving a good watering previously. The watering up to this time need not be more than sufficient to keep the soil moist, and after the earthing-up, until they come into flower, water need not be given excessively, but only when the soil is dry. When they come into flower, or even before this when they have a large leaf-development, water will be needed daily, or in very bright weather twice a-day, and weak liquid manure may be given at every alternate watering. One peck of sheep or horse droppings to thirty gallons of water, or 1 lb. of guano to a like quantity of water, will be sufficiently powerful, and if this be used for sprinkling the house at the time of shutting-up, or in the evening, no red spider will appear. I grow my Kidney Beans in any house having the required temperature, and in a light and airy position, and I have no dread of introducing red spider. I do not syringe them; they have to take their chance of sprinkling should they be in a house where it is practised, but I do not wet them much whilst in flower. If they grow stiff they will need no stakes, but if they are likely to fall I put in three or four stakes at the sides of each pot, and string round them with matting.

The earliest time at which I have had pods fit to gather was forty days from sowing, but from fifty to sixty days is the average. Each sowing will continue in bearing from a fortnight to three weeks, so that sowings should be made from the beginning of January, the earliest time at which I find sowing profitable, up to the middle of May. To insure a succession it is necessary to sow in pots twice after beginning sowing in the open ground. With me, out-doors, Kidney Beans are never in until the middle of July, therefore I must provide for crops in-doors accordingly.—G. Abbey.

PROPAGATING THE MISTLETOE.

I have observed from time to time paragraphs on the difficulty of propagating that interesting parasite, the Mistletoe; therefore I write to say that I have succeeded in establishing it in my garden without the aid of missel thrushes, or using anything unusual. I ripened the berries in my apron pocket, and when shrivelled I inserted them in some slits cut in the boughs of Lime trees, closing the bark on them. This was done about the end of January. The seeds all germinated,

and my little plants are growing. Owing to my ignorance I mistook the first sign of life for a spot of mould on the tree, but the spots soon put out two small green horn-like pieces, giving the little parasite the appearance of a grey moth's head with green antennæ. I was interested to find my simple process had been successful, and therefore communicate to our ever-kind Editors my trifle of experience.—F. E. T.

THUNBERGIA HARRISI—MEDINILLA MAGNIFICA.

I was pleased to see an observation respecting the Thunbergia Harrisi, and your correspondent has not said a word too much in its favour. My treatment of it differs very little from his, except in regard to the soil, which consists of equal parts loam, leaf soil, and bog, with a sprinkling of silver sand. I also give occasional waterings of liquid manure. This time last year I had a plant in a 60-sized pot, and feeling anxious to prove its good qualities I gave it plenty of pot room, keeping it in the stove throughout the summer, when its growth became so rapid as to compel me to allow it full stretch by letting it occupy one end of the house. It quickly attained a height of 10 feet, and 15 feet span; it fills a 12-inch pot, and during the winter it continually produced a profusion of bloom. I should think a more desirable object for winter could not be found. It also succeeds as a small pot plant for table decoration, when trained to a wire trellis, globular or otherwise. The only drawback is that it is very liable to be attacked by insects.

We have also a fine specimen of Medinilla magnifica in bloom. Little mention is made of these old-fashioned inmates of our stove; and though "little gems" and "great beauties" are announced in our lists, we should not lose sight of these old favourites, and the Medinilla is one of them. Our plant commenced blooming a month ago, and bids fair to last another month or six weeks. It is truly magnificent, with eight racemes about 18 inches in length gracefully hanging downwards, backed up with large, dark green, ovate leaves. The plant is about 6 or 7 feet high, and so majestic that it appears unwilling to acknowledge the humbler denizens of the stove.—A. Burns, *Lawthwaite House, Cumberland.*

BASKET PLANTS FOR THE STOVE.—No. 3.

EPIPHYLLUM.

This is a small but highly ornamental genus of Cactaceæ. The first species introduced to our plant collections have been made use of by cultivators for the production of a vast number of beautiful varieties, all of which are well deserving of general cultivation.

Epiphyllums are natives of Brazil, growing plentifully on the celebrated Organ Mountains, where the arms and forks of the forest trees are clothed with these plants, in company with Aroids, Orchids, Bromeliads, &c. The Epiphyllums form beautiful objects, grown in hanging baskets—indeed, for autumn decoration they have few equals, and no superiors. They are also extremely ornamental in whatever way we see them, more especially when a beautiful pyramid or festoon is formed by grafting; but as it is their beauties and adaptability as basket plants that I wish to impress upon the minds of my readers, I shall pass by other methods of cultivating them.

I am quite aware that it is the opinion of many that Epiphyllums do not flower freely, except when they are grafted. This opinion, however, I cannot endorse, for plants upon their own roots have both grown and flowered most profusely with me; indeed, every point of their flat leaf-like joints has produced its brilliantly-coloured blossom. Although, it must be admitted that the flowers are not displayed to so much advantage when the plants are grown upon their own roots in pots, because, owing to the drooping habit of the flowers, the greater portion of their beauties are hidden, yet when grown in baskets and suspended above the level of the eye, all their vivid tints of colour are fully displayed.

The culture of these plants is extremely simple. For soil use a mixture of good loam, peat, and leaf mould, in about equal parts, adding sufficient sharp sand to make the whole feel gritty when taken in the hand. During the growing season I have always kept them in a stove temperature, removing them into a somewhat dry intermediate house to thoroughly ripen their growth, and then to a still cooler place; but care must be taken that the house is not sufficiently cold to discolour them. From this place they should be again removed into the intermediate house as autumn closes in, and from thence some may be taken into the stove, in order to bring them into bloom before the rest, and thus keep up a succession of flowers as long as possible.

Amongst so many varieties it is hardly possible to make a selection, or recommend one in preference to another; suffice it to say all are good, and that I do not think it possible to find a bad one in cultivation.—Experto Crede.

GOLDEN-CLOUDED IVY.

This is a beautiful Ivy for ornamenting rockwork as it is seen with us. It does not grow so quickly as the common green, and most variegated Ivies do not grow so quickly as it does; still, when it is well established it makes growths several feet long in a season, and as it gets older it seems to develope a finer variegation. In summer, when it has just made its young growth, it has a more beautiful appearance than it has at any other time. Of several variegated varieties that we have it is the best; the others are not decided enough in their variegation to be highly thought of. Small nicely-variegated twigs of the Golden-clouded would be very useful for mixing amongst cut flowers. I have used them for that purpose late in the season when flowers generally are scarce; but no doubt the plants will require to be good-sized before they will allow much cutting at.—R. M.—(*The Gardener.*)

ROYAL HORTICULTURAL SOCIETY.

MAY 15TH AND 16TH.

Variable as the English climate is, happily there is seldom a May so ungenial as that of the present year has hitherto been; but despite of this, despite of many of the leading metropolitan exhibitors being busily engaged in preparing their plants for the great show at Manchester, there were at Kensington yesterday (the first day of the Show) a large number of exhibitors of plants. The tent assigned to these is part of that used for the great June Rhododendron Show, covering an area which requires a vast number of plants to fill it, and yet there is no appreciable thinness. In addition, there are two long tents devoted exclusively to dinner-table decorations, for which liberal prizes were offered, and on which our coadjutor, "D., *Deal,*" reports beneath.

An offer of £84 for table decorations was sure to bring forward a large number of competitors; and as the second class was one in which economy of cost was to be considered, it was natural to expect that the competitors in the first class would consider that any amount of ornamentation would be admissible, and hence that professional decorators, dealers in glass and china, would come with a full swoop to carry off the liberal prizes offered. I was, therefore, the more pleased to find that they were signally routed, and that the first and second prizes (the latter given by the President) in the first class fell to amateurs, for assuredly the overdoing of these decorations is the one point especially to be borne in mind.

It would be impossible to enter into descriptions of the various tables—in fact I believe that it is impossible to give any idea of such matters by mere verbal descriptions. Let me essay, however, to describe that which obtained the first prize. It consisted of two large Ferns let into the table, and surrounded by Fern leaves, so as to hide all appearance of their being so done. The centrepiece was singularly elegant—a tall glass, with Cacti blooms at the base of it; the vase itself containing Lily of the Valley, salmon-coloured Geraniums, and light Grasses. On either side were two recumbent figures surrounded by moss, and specimen glasses were placed in different positions round the table. It was light, elegant, not costly, and did not hide the guests from one another. Miss Blair, who took the second prize, had Palms inserted in the table, and two March stands, with glasses placed round.

The table decorated by Messrs. Herbert & Jones was an admirable example of how it ought not to be done—one huge mass of colour; three enormous stands, surmounted at the top with numbers of small flags, in fact very much like what we should see at a bazaar or fancy fair. In the same way I must deprecate that exhibited by T. A. Steel, Esq., containing a large plateau and two huge blocks of Wenham Lake ice. One exhibited by Messrs. Webber & Co., Covent Garden, which had some good points, was spoiled by having a Melon and Pine elevated on stands covered with a quantity of Lycopodium and Isolepis. I admired one by Mr. Perker, of Leamington, but thought the stands at each end too high. Messrs. Philips & Pearce had a large plateau with tall glass stands, and Fuchsias drooping. The fruit and flower dishes were very pretty, but on the whole they were too elaborate. One exhibited by Mr. Green had a

pretty idea of a light arch springing from troughs in front of each guest, but it was overdone.

In the second class, where economy of cost was to be considered, Miss Blair was first, having three dwarf glasses, tall and dwarf specimen glasses being placed about the table. Miss Hassard was second: her's was very simple, but to my mind a little deficient in colour.

I may at some future time, when I shall have seen the decorations at Manchester, have to say something more on the subject; but I am glad to find a more simple taste encouraged, and hope it augurs better things in table decorations than the vulgarities we have been treated to.—D., *Deal.*

In the purely horticultural division of the Show Roses in pots formed the great feature. Messrs. Paul & Son, of Cheshunt, and Mr. Turner, of Slough, exhibited fine groups of fifty in 8-inch pots, the former taking the first prize, the latter the second. Among the finest specimens for size and profusion of bloom were the following—viz., Madame Eugénie Verdier, La France, Vicomte Vigier, Leopold II., Catherine Mermet, Paul Néron, Dupuy Jamain, Marquise de Mortemart, Edward Morren, Paul Verdier, Baroness Rothschild, Miss Ingram, Louisa Wood, Marie Baumann, and Marquise de Castellane. For twelve specimen plants Messrs. Paul & Son were first with magnificent specimens profusely covered with large blooms; the varieties showing to the best advantage were Beauty of Waltham, Souvenir d'un Ami, Victor Verdier, John Hopper, Camille Bernardin, Princess Mary of Cambridge, Céline Forestier, Paul Verdier, Charles Lawson, and Madame Willermoz. Mr. Turner, who was second, had splendid plants of Victor Verdier, Charles Lawson, Paul Perras, Souvenir de Malmaison, Juno, and Anna Alexieff, with others almost equally good.

Prizes were offered for nine Rhododendrons in pots or baskets, but none were exhibited. For twelve hardy perennials in 12-inch pots Mr. Parker, Exotic Nursery, Tooting, was first with exceedingly well grown specimens fully 18 inches in diameter, consisting of the white Iberis correæfolia, the golden Alyssum orientale, Primula cortusoides amœna, Cheiranthus Dillenii very fine, Trollius napellifolius, Spiræa japonica, Linum flavum, two Pyrethrums, the double-flowered Pæonias officinalis and tenuifolia, and Iris spectabilis. Mr. Ware, Tottenham, was second with, among others, two excellent Funkias and Trollius Fortunei with rich orange flowers.

J. T. Peacock, Esq., Sudbury House, Hammersmith, offered prizes for twenty-four distinct species of Agaves, undertaking not to show his own rich collection for competition. W. B. Kellock, Esq., Stamford Hill, was first with a very choice group, in which were A. applanata, a handsome plant of Juncea filifera, one of the shred-leaved kinds; Ousselhemiana; a variety of filifera, the plant 28 inches in diameter, one of the finest specimens we have ever seen; Celsiana, with glaucous foliage; univittata, very large; tricuspidata, with great fleshy leaves; ensiformis, and several fine specimens and rare kinds. M. Jean Verschaffelt, 134, Faubourg de Bruxelles, Ghent, was second, also with excellent plants, of which A. Galeotti and A. robusta had first-class certificates from the Floral Committee.

Of Perpetual Carnations, the only exhibitor was Mr. Turner, of Slough, who had a first prize for an excellent group, in which Marchioness of Westminster, deep rose; Empress of Germany, very large, pure white; and Princess Christian, blush, had first-class certificates.

The miscellaneous subjects as usual were numerous, and many of them highly deserving of notice. Extra prizes were awarded to Messrs. Veitch for a beautiful group of Roses and Rhododendrons, the latter from 12 to 15 inches high from the pot, and with heads fully as much in diameter, dense masses of bloom; to Mr. Williams for a mixed group; to Mr. Ware for a collection of herbaceous plants and cut flowers of the same; to Mr. Pestridge, Greenway Nursery, Uxbridge, for baskets of Tricolor Pelargoniums; to Messrs. Dobson, of Isleworth, for well-grown herbaceous Calceolarias; to Mr. Turner for a basket of forcing Pink Coccinea, a showy fragant variety; to Mr. Davis, Whetstone, for well-flowered Show Pelargoniums; to M. J. Verschaffelt, Gheut, for twelve Yuccas and Buonaparteas, including handsome plants of Y. cornuta and canaliculata, B. tenuifolia glauca, and B. pitcairniæfolia with graceful drooping foliage. B. hystrix vera, more singular than pretty, received a first-class certificate. M. J. Verschaffelt also had an extra prize for twelve new Agaves, of which A. Leopoldii, whitish-green with reflexed cinnamon spines, had a first-class certificate, and for two extremely handsome standard Sweet Bays. Mr. B. Johnson, gardener to T. Clarke, Esq., Swakeleys, Uxbridge, sent fine cut specimens of Bougainvillea spectabilis; Mr. Chard, gardener to Sir F. Bathurst, Bart., Clarendon Park, Salisbury, cut flowers of Cloth of Gold Rose; and Mr. Croucher, gardener to J. Peacock, Esq., Hammersmith, a large and extremely valuable collection of Agaves, Mammillarias, Echinopsis, and Opuntias, some of the latter very grotesque in form. Echinopsis Wilkinsii, E. Rohlandii, and E. Duvallii were in flower, we believe, for the first time in this country. Extra prizes were also awarded to Mr. Turner for a large collection of Azaleas; to Messrs. Standish & Co. for a remarkable specimen of Eucharis amazonica; to Mr. W. Paul for variegated Pelargoniums and cut Roses, of which Tea Louise de Savoie and Maréchel Niel, Marie Baumann, Dr. Andry, and John Hopper were very conspicuous; and to Mr. Ware for Pyrethrums.

Fruit Committee.—G. F. Wilson, Esq., F.R.S., in the chair. Mr. Welch, Dorfold Gardens, Nantwich, sent a specimen of twin Cucumbers. Mr. Maher, gardener to A. Allhusen, Esq., Stoke Court, Slough, sent a brace of his Prolific Cucumber, a good sort, and very like, if not the same, as Blue Gown. Mr. Gardiner, The Gardens, Lower Eatington Park, sent sprays of Apricot and Pear, showing the abundance of the crop of fruit in that part of Warwickshire, with the following communication:—

"I forward to you a small box containing examples of fruit-laden Apricot and Pear shoots, from trees in the gardens here, and which you will oblige by laying before the Fruit Committee to-morrow, with the accompanying paper. It may interest you to learn that I have a fair general crop of Apricots, and I have thinned them for tarts. One tree, however, is minus a crop, owing, I opine, to the effects of a very heavy crop last year, and the shade of a canvas which was applied for the space of two or three weeks to retard the ripening fruit. Of Pears I never saw a better crop here. Plums, a fair general crop, both of which were secured chiefly by artificial protection. Apples, thus far, promise a very good crop here. Strawberries also abundantly bloomed; an evidence of the protective utility of "Frigi Domo" canvas during inclement weather, whilst the trees were in bloom.—Wm. Gardiner."

Mr. Tegg, gardener to John Walter, Esq., Bearwood, sent three bunches of Black Hamburgh Grapes, the same as those which received a special commendation at last meeting; also three bunches of Buckland Sweetwater, and a basket of Peaches, all very handsome, and a cultural commendation was awarded to the exhibition. Mr. John Monro, Potter's Bar, sent six fruit of Little Heath Melon, a large red-fleshed variety, one of which weighed 9 lbs. It was awarded a first-class certificate.

Henry Webb, Esq., Redstone Manor, Red Hill, sent specimens of Pears, just set, attacked by an insect. Mr. Webb offered a reward for a prevention of the pest in the following communication:—

"I again call the attention of the Fruit Committee to the destructive effects of a small fly which deposits its eggs in the blossoms of our Pears, and in many instances, as shown by the example sent, every Pear on the bunch is affected. I shall be happy to offer a reward of £5 to anyone who will point out how the evil effects of this insect can be prevented.

"Yours, &c.,

"Henry Webb."

It was reported that the Peas for experiment in the Chiswick garden are now coming into flower, and that those interested in the experiments may examine them.

Prizes were offered by Messrs. Carter & Co. for the best dish of First Crop Pea, also for the best dish of any variety of early Pea. Mr. Chard, gardener to Sir F. Bathurst, Bart., Clarendon Park, Salisbury, and Mr. Brown, gardener to E. Mackenzie, Esq., Fawley Court, Henley, were respectively first and second for First Crop, and Mr. Brown first for Little Gem.

Floral Committee.—W. Marshall, Esq., in the chair. Messrs. E. G. Henderson & Son, Wellington Nurseries, St. John's Wood, sent a group of plants, including several Orchids, Anthurium Scherzerianum with large spathes, and seedling Mimuluses; the latter received a cultural commendation. Mr. Wilson, gardener to W. Marshall, Esq., Clay Hill, Enfield, sent a variety of Cattleya Mossiæ, with very large flowers, measuring 8 inches across. Mr. Chambers, gardener to J. Laurance, Esq., Beddington, sent a collection of cut flowers of Hoyas, Justicia carnea, Clerodendron Thomsoniæ, and sundry others; also a box of the Indian Rhododendron Dalhousieanum. For the last-named a cultural commendation was given. A like award was made to Mr. Green, gardener to W. Wilson Saunders, Esq., Hillfield, Reigate, for a collection of Bromeliads, in which were Nidularia spectabilis with a crimson centre, and Pholidophyllum acaule, with singular grey or greenish-yellow barred leaves.

Mr. Denning, gardener to Lord Londesborough, Grimston Park, Tadcaster, exhibited probably the finest flowering specimen of Vanda teres ever seen. It stood nearly 7 feet high, and had upwards of fifty flowers of large size. For this a cultural commendation was awarded, and another was given for a group of Orchids, consisting of several fine Cattleyas, a splendid plant of Oncidium altissimum, and Dendrobium Devonianum. An unnamed splendid magenta-crimson Masdevallia, and Odontoglossum coronarium, reddish brown, with a yellow-and-brown lip, shown in the same collection, had each a first-class certificate.

Mr. Masters, gardener to the Earl of Macclesfield, Tetsworth, sent Bougainvillea speciosa variegata with well-marked yellow variegated leaves, and bracts as in the green-leaved form; G. F.

Wilson, Esq., Weybridge, Lilium Humboldtii showing its leaves produced in nines at intervals along the stems; and Mr. G. Smith, Edmonton; Mr. Janes, Highgate; Mr. Pestridge, Uxbridge; and Mr. George, Putney Heath, Tricolor and other Zonal Pelargoniums. Mr. Davis had a cultural commendation for the Pelargoniums before alluded to, and Mr. R. Dean, Ealing and Bedfont, for Intermediate Stock Mauve Queen with densely packed heads of flowers 5 inches in length. Mr. Williams, Holloway, sent Pink, White, and Mauve Queen Stocks; Messrs. Carter & Co. Tricolor Pelargoniums, Solanum Capsicastrum Ivory with white-variegated leaves, and Cordyline lentiginosa before certificated. Mr. D. S. Thomson, nurseryman, Wimbledon, had a first-class certificate for Gloxinia Cecilia, large, white, with a purple throat.

E. Foster, Esq., Clewer Manor, had first-class certificates for Pelargonium Chancellor, rose crimson, with dark, orange-shaded blotch in the lower petal, dark crimson top, shading off to a magenta edge; also for Naomi, lilac rose, blotched in the lower petals, dark top. Mr. Turner had a first-class certificate for Azalea grandis, and M. J. Verschaffelt for Agave robusta, Perringii, and Kellischii. Messrs. Barr & Sugden, Covent Garden, again sent a collection of cut flowers of Narcissus, together with Scillas.

CRYSTAL PALACE SHOW.

The great flower shows of the season commenced on Saturday last with that held at the Crystal Palace. Although the prizes offered were liberal, the Show was not so extensive as usual, but the quality of the plants as a whole was very good.

For twelve stove and greenhouse plants, Mr. Baines, gardener to H. Micholls, Esq., Southgate, was first with fine specimens of the pink Boronia pinnata; Azalea Sir Charles Napier, scarlet; a large bushy Eriostemon; Genethyllis tulipifera, large and in profuse bloom; Aphelexis macrantha purpurea, beautifully fresh; fine plants of Erica coccinea minor and Erica Cavendishii; Ixora coccinea, with magnificent orange-scarlet heads, some of them 6 inches in diameter; Azalea Magnificent, a mass of snow-white blossom 6 feet high; an excellent Statice profusa; Aphelexis humilis rosea, not fully out; and Anthurium Scherzerianum, with twenty fine spathes besides buds. Mr. Baines's plants averaged from 4 to 5 feet in height, and nearly as much in diameter, and it is not too much to say that they constituted by far the finest feature in the Show. Mr. Peed, gardener to Mrs. Treadwell, Lower Norwood, came second with, among others, fine plants of Chorozema cordatum, Dracophyllum gracile, Eriostemon neriifolium, Erica Cavendishii, and Epacris miniata splendens. Mr. Chapman, gardener to J. Spode, Esq., Hawkesyard Park, Rugeley, was third with a well-grown collection, including very good specimens of Clerodendron Balfourianum and Epacris miniata splendens. Mr. G. Wheeler, gardener to Sir F. H. Goldsmid, Bart., Regent's Park, was fourth.

In Class 2, for nine plants, nurserymen only, Messrs. Jackson and Son, Kingston, were first, and Mr. Morse, Epsom, second. In their collections we noticed very good plants of Stephanotis floribunda, Aphelexis macrantha purpurea, Imantophyllum miniatum, Clerodendron Balfourianum, Genethyllis tulipifera, and Medinilla magnifica. Mr. W. Cutbush, Barnet, was third.

In the corresponding class for amateurs, Mr. Ward, gardener to F. G. Wilkins, Esq., Leyton, was first with a fine group, in which were a plant of Statice profusa, 4 feet in diameter and in excellent bloom; Genethyllis Hookeri; two fine Azaleas; Genethyllis tulipifera very closely trained, but with highly-coloured flowers; Dracophyllum gracile; Aphelexis macrantha purpurea in splendid colour; and Tetratheca ericæfolia, very large and with a profusion of bloom. The other prizes went to Mr. J. Wheeler, Stamford Hill; Mr. Kemp, gardener to the Duke of Northumberland, Albury Park; and Mr. Peed, in the order in which their names occur.

In groups of six fine-foliaged plants Mr. Baines was first with the two magnificent Sarracenias referred to in another column, Theophrasta imperialis, a fine specimen of Gleichenia speluncæ, Dasylirion acrotrichum, and an excellent Cordyline indivisa. Mr. Foreman, gardener to E. C. Nicholson, Esq., Herne Hill; Mr. Chapman, and Mr. Peed were the other prizetakers. The first prize for a group for effect went to Messrs. Carter & Co., who had a diversified and well-arranged collection.

Cape Heaths, as usual, were numerously shown, and on the whole very good. In the open class for eight plants, Mr. Ward took a first prize with specimens of tricolor Wilsoni, tricolor elegans, and candidissima measuring nearly 4 feet in diameter, and smaller ones of depressa multiflora, ventricosa magnifica, florida, and Massoni major. Another first prize was awarded to Messrs. Jackson & Son, who had also an evenly-grown collection in which ventricosa coccinea minor, ventricosa magnifica, tricolor flammea, tricolor Wilsoni, and Victoria were in excellent bloom. Mr. Peed was second. For six, Mr. Ward was first with compact plants about 2½ feet high, among which the bright pink mutabilis, profusa, and eximia superba were conspicuous. The other prizetakers were Messrs. Peed, Kemp, and J. Wheeler.

Azaleas were allowed five classes; many of the best specimens had already appeared at Kensington and the Regent's Park, some fresh ones were good without being remarkable, and many of inferior merit. The principal prizetakers among nurserymen were Messrs. Lane, Turner, and Williams; and among amateurs Messrs. G. Wheeler, Peed, Gold, Chapman, and J. Wheeler. Two fine groups of thirty in small pots came from Mr. Turner, of Slough, and Mr. Williams, of Holloway.

Orchids made a fair show, and comprised a number of well-flowered specimens, but little that was remarkable either for novelty or for profusion of bloom. Mr. Ward was first for a group of fifteen, and had a good Cypripedium villosum, and C. candatum with a score of flowers. Mr. Burnett, gardener to W. Terry, Esq., Peterborough House, Fulham, who was second, had a good plant of Saccolabium ampullaceum in fine bloom. The third prize went to Mr. Burt, gardener to H. B. Mildmay, Esq., Sevenoaks. For ten, the prizes were taken by Messrs. G. Wheeler, Jackson & Son, and J. Wheeler. In the nurserymen's class the only exhibitor was Mr. Williams, whose eight consisted of excellent examples of Cypripedium barbatum nigrum, C. villosum, Vandas, Saccolabium retusum, Aërides virens, the Foxbrush Aërides, which from the number of racemes it promises to produce will be very fine, and Dendrobium nobile. For six, Mr. Peed and Mr. Burnett stood first and second.

For Pelargoniums, Mr. Ward, gardener to F. G. Wilkins, Esq., Leyton, took as usual the first place with Maid of Honour, at least 4½ feet in diameter; Exhibitor, Regina formosa, Ariel, Rob Roy, Beacon, and others, which, though smaller than the first named, were also in excellent condition. Mr. James, gardener to W. Watson, Esq., Isleworth, was second with well-bloomed neat plants about 2 feet in diameter. Of Fancies, the only six came from Messrs. Dobson & Sons, of Isleworth, who had good specimens of Tormentor and others.

Of Roses in 13-inch pots splendid specimens came from Messrs. Paul & Son, and Mr. Turner, who were respectively first and second. The varieties were nearly the same as those noticed at the Kensington Show of May 1st. In the amateurs' class, Mr. James was first with a really well-grown half-dozen, Mr. Gold being second. For twelve in 8-inch pots Mr. Turner had a first prize.

The Metropolitan Floral Society offered prizes for Pansies and Tulips. For thirty-six blooms of the former, Messrs. Downie, Laird, & Laing were first, Mr. Hooper second; for twenty-four, Mr. James first, Mr. Catley third. For thirty-six Tulips, Mr. Turner and Mr. Hooper, Bath, were respectively first and second; for twelve, Mr. Norman, Plumstead, first, the Rev. H. H. Dombrain second.

Among the miscellaneous subjects were thirty-six blooms of Maréchal Niel Rose, exhibited by Mr. Skinner, gardener to Captain Christie, Westerham Hill; these were truly magnificent, some of them measuring 6 inches in diameter, and very richly coloured. Mr. William Paul, Waltham Cross, also sent stands of cut Roses, and the new white-flowered and other Pelargoniums recently exhibited by him. Messrs. Fisher, Holmes, & Co., Handsworth Nursery, Sheffield, sent a basket of Thymus citriodorus aureus marginatus, a neat golden-variegated Lemon Thyme for edging purposes. Messrs. Downie, Laird, and Laing contributed a miscellaneous group of plants, together with some fine new Fancy Pansies; Messrs. Dobson & Sons, Calceolarias; Mr. Ware, Tottenham, spring-flowering plants and blooms of double Pyrethrums; and Mr. Hooper, Pansies and Turban Ranunculuses. Groups of new plants were exhibited by Mr. Williams and Messrs. Carter & Co., and seedling Pelargoniums by Mr. Turner.

REVIEW.

Botany for Beginners: An Introduction to the Study of Plants. By M. T. Masters, M.D., F.R.S. London: Bradbury and Evans.

In his preface Dr. Masters says, "From the experience of several years as a lecturer, the compiler of the following pages has arrived at the conclusion that one of the greatest difficulties in the way of those beginning to study botany arises from the profusion of details usually presented to their notice at the outset." Such has long been our own view of the methods hitherto devised for teaching science to the uninitiated in scientific subjects and to those for whom science has no natural attractions. Even lovers of Nature, however ardent in their desires to acquire a knowledge of her mysteries, are met on the threshold with difficulties in the very language by which their knowledge is to be attained. As the best way of learning a language is first to learn to speak it and then to study the grammar, so the best way to learn a science is to become familiar with the objects to be studied and then to investigate their structure.

In the work before us Dr. Masters has ably carried out this method of instruction by introducing first of all an acquaintance with the objects, and then treating of their various struc-

tures. In ordinary introductions to botany the student is dismayed at the outset by the study of tissues and other minute structures, which, if he has not the skill to use a powerful microscope, he can have no practical knowledge of. There is nothing in them to give pleasure to the eye or to captivate the mind. Dr. Masters, on the contrary, begins his first lesson by placing a twig of Willow in bloom in the hand of his pupil, and he says, "Look at it well, so as to get a good notion of its general form and appearance;" and he farther tells him that he "must start with the idea that he has a machine made of several parts more or less complicated to pick to pieces." And the example that is here first given is certainly a complicated one of plant-structure to the beginner. There is no apparent "flower" according to popular notions—no calyx and no corolla. Unlike the Rose or the Lily, there is nothing in it to attract the careless observer, and no beauty such as that which flower-gatherers admire: and yet out of this unattractive complicated structure Dr. Masters teaches a botanical lesson which the dullest comprehension may understand.

"It is not too much to assume that a Willow is known to everyone likely to read these notes, and the most superficial observer cannot fail to have noticed that there are several kinds of Willow (Salix)—some are trees, others shrubs. It makes no difference, for our present purpose, which kind of Willow he taken. In early spring by every river's bank may be seen, in the full flush of beauty, bushes smothered with golden blossoms, redolent with spicy fragrance, melodious with the hum of bees. Not far off is pretty sure to be found a similar bush, much more modestly caparisoned, its blossoms of a dull quaker-grey or pale olive-green, very pretty and graceful, but not so attractive as the one of which we have first spoken. These are Willows. The golden blossoms are really flowers, so are the grey ones; wherein lies the difference between the two will presently be made apparent. As one object of these notes is to foster a tendency to notice common things, we may remark that the flowers are here produced before the leaves—a fact to be noted; moreover, it serves to confirm our assertion that what we have called flowers really are so, for it is obvious there are yet no leaves on the bush—what, then, can these be but flowers?

Fig. 1.—Male Catkin of Willow. Natural size.

Fig. 2.—Male Flower of Willow detached from the catkin. Enlarged.

"Let us remove one of the yellow flowers from the branch, or, better still, pick one up from the ground, and examine it with the glass, using the point of a knife or of a needle to separate its parts. What do we find? An oblong mass, made up of shaggy scales, beyond which protrude long threads, like pins with yellow heads (*fig.* 1). Now, with the knife, separate one of the little shaggy scales from its fellows, as carefully as possible. By preference, take a scale from a young or recently opened blossom, and from near the pointed end of the mass. Suppose this proceeding satisfactorily accomplished, the observer should have before him a little scale (*fig.* 2), generally shaggy, with long hairs, and within the scale, attached to its very base, two or sometimes more of the pin-like threads before mentioned, and on one side of them a small greenish sticky knob—unfortunately not represented in the drawing. That's all we have to deal with in this case. In truth, we have here a flower of very simple construction indeed. The shaggy scale is called a *bract*, the pin-like threads are called *stamens*, the shaft of the pin is the *filament*, the yellow head is the *anther*, which by the way we may notice is divided by one deep long furrow into two halves, called lobes. Each lobe is marked by a similar long groove, but not quite so deep, and which marks the place where the anther will presently split. The anther contains a yellow dust-like powder, which falls in showers when the bush is shaken, escaping from the two chinks just mentioned. This powder is the *pollen*. The green knob is a *gland*, secreting a honied juice.

"The oblong mass, then, which we picked off the ground is not a single flower, but a mass of flowers. It is what is called an *inflorescence*. As we shall see by-and-by, the inflorescence is very different in different plants, and different names are applied to these variations. The particular inflorescence before us is called a *catkin*, and one distinguishing feature of a catkin lies in the fact that it does not long remain on the bough which bears it, but falls off very early; and this is the reason why we advised the pupil to pick up the catkin from the ground. He will the more readily remember the 'deciduous' character of the catkin.

"If now we pluck a branch from the grey-looking Willow—this time we shall have to pluck from the bush, as we shall not find many blossoms on the ground—we shall find a similar

Fig. 3.—Female Catkin of Willow. Natural size.

Fig. 4.—Female Flower of Willow. Enlarged.

oblong mass (*fig.* 3), a catkin in fact, with the same sort of scales or bracts; but these bracts do not in this case protect pin-like stamens, but a small flask-like body (*fig.* 4), supported on a short stalk. The neck of the flask tapers somewhat and divides into two spreading arms. This flask-like body is the *pistil*, in this case stalked and consisting of an *ovary* constituting the flask, a *style*, the neck surmounting the flask, and two *stigmas*, which are the divergent arms of the style.

"Within the ovary are a number of very small *ovules*, which the inexperienced beginner will hardly be able to see, but which will ultimately make themselves sufficiently conspicuous as *seeds* covered with cottony hairs. In the Willow, then, we have two sorts of flowers, both of the simplest construction. We do not in the case of the Willow find both sorts of flowers on the same tree, but on different trees. The one set of flowers (male flowers) furnish pollen from their anthers; the other (female flowers) yield seed from their pistil. But unless the pollen from the one kind of flower gain access to the stigma of the other kind of flower, no seeds will be formed. If, however, the wind convey the pollen from one flower to the other, or if bees or other insects visit first the highly scented stamen-flowers, and afterwards the pistil-flowers, they are pretty sure to scatter the pollen on to the stigmas of the latter, and the tiny 'ovules,' which the beginner will have difficulty in finding, will, in consequence, ripen into seeds which he cannot fail to see if he looks for them."

The extract we have given above is a specimen of the clear and succinct manner in which the subject is treated throughout. As a book for beginners in the study of botany it is at once original, simple, and intelligible.

Exhibition of Horticultural Buildings, &c., at Birmingham.—The following memorandum has just been issued by the Local Committee:—"Prizes not having hitherto been offered in this division of the Exhibitions of the Royal Horticultural Society, the plan now submitted is, necessarily, to some extent experimental. But the Sub-committee have very carefully considered the subject; and with respect to horticultural buildings, as they were not prepared to lay down in the first instance any special rules of classification, that will be deferred until the entries are completed. At that time the Sub-committee will confer with gentlemen possessing scientific and practical knowledge of buildings, &c., who will be selected to act as

Judges, and who will then group this part of the collection in as complete a manner as possible before proceeding to make their awards. In addition to the medals mentioned in the first issue of this circular, the Judges will have two extra gold medals placed at their disposal, one or both of which, at their discretion, may be awarded for horticultural buildings, as well as that first offered." We remind our readers that the last day for making entries is Saturday the 25th inst. Applications for entry forms should be sent to Mr. B. A. Hallam *Midland Counties Herald* Office, Birmingham.

BLANDFORDIA.

This is a beautiful genus of free-flowering plants, belonging to the section Hemerocallicæ of the order Liliaceæ. There are many things to be urged in favour of the culture of Blandfordias, not the least of which is the probability of their

Blandfordia aurea.

proving hardy, at least in our southern and western counties; at any rate, the experiment is worth trying, for, presuming my ideas prove correct, they would become charming additions to our borders. They would also be beautiful objects for the base of rockwork, or for sequestered nooks in the groves or dells of a pinetum, and prove formidable rivals to Tritoma and Hemerocallis, genera to which they are nearly allied, though very distinct in appearance, and I see no reason why the Blandfordias should not prove equally hardy.

There are several species of this genus, all of which are well deserving the attention of the amateur, and their culture is extremely simple. As I grow them in the greenhouse, they should be potted in a mixture of half peat and half loam, adding a small portion of thoroughly decomposed manure and a little sharp river or silver sand. Should, however, any of my readers adopt my suggestion, and give them a trial in the open air, the plants should be placed in position early in summer, to allow them to make their growth both of root and leaf in the places intended for them to winter. Before doing so, however, it will be well to prepare the ground for their reception by taking the soil out to the depth of about 2 feet, well drain, and fill up the space with the compost previously

named for pot culture; but here it would, perhaps, be advisable to add a little good leaf mould. The first winter a slight protection might be afforded them by shaking a little litter over the crown and the soil in the vicinity of the roots. The following species are beautiful decorative objects, are easily grown, and within the reach of all.

B. aurea.—As the illustration (kindly furnished by Messrs. Veitch) shows, this is really a superb plant. The leaves are narrow, linear, keeled at the back, but channelled above, suberect, and dark green. The flower-scape attains a height of about 2 feet, and upon its apex is borne an umbel of large golden yellow bell-shaped flowers nearly 2 inches long. It is a native of Australia. Another fine species is

B. Cunninghamii.—The leaves of this are spreading, perfectly smooth, some 2 feet in length, linear in shape, and keeled at the back, bright green above, but somewhat paler below. The flower-spike rises to about the same height as in the previously-named plant, and the flowers are about the same size; they differ, however, in colour, being a rich coppery red, the apex of the segments being golden yellow. Its native home is in the mountains of New South Wales.

B. flammea.—This is a fine plant, bearing a general resemblance to the other kinds, yet having a more rigid habit. Its flowers are very large, rich orange scarlet, with yellow margins.

B. nobilis is a very old inmate of our greenhouses, but so much neglected that the majority of plant-growers of the present day do not know it. The leaves are narrow and entire, whilst the flowers are pendulous, produced in large umbels or terminal clusters; they are funnel-shaped, deep red, with the upper portion of the segments yellow.

There are several hybrid forms of these plants to be met with in collections, the names of which are unknown to me; their flowers, however, are all beautiful, and they deserve a more extended culture.—Experto Crede.

KENT'S BANK, GRANGE-OVER-SANDS, LANCASHIRE.

I will give you a brief description of this place and its attractions. It is called Kent's Bank from its position on the banks of the river Kent, and on the margin of the great crooked Bay of Morecambe, over the sands of which was once the high road from the opposite shore of Lancaster, a passage attended with the greatest danger from the uncertain and shifting channel of the Kent, a fact experienced by the Roman general Agricola during the passage of his army A.D. 79, narrated by himself to Tacitus.

Kent's Bank, with its beautiful and pleasantly-situated villas, is on the northern shore of Morecambe Bay, in the north division of Lancaster. Near it is a handsome and modern mansion, the residence of J. S. Young, Esq., J.P., standing in a verdant rocky corner of the shore, on the site of an old house, said to have belonged to a prelate of olden times. The place is much frequented by visitors in search of health from its sheltered situation and mild climate, and faces south-east and south. The view is most enchanting, commanding an extensive prospect of Arnside Knot, with its Fir grove crown, Warton Crags, the thickly-wooded slopes of Silverdale, Bolton-le-Sands, Hest Bank, Lancaster, Morecambe, and the estuary of the Lune, so cheerily sung of by the poet Drayton. Contiguous to Kent's Bank is Humphery Head, a noble headland, with a fine mixture of bold and beautiful scenery; Kirkhead, too, with its craggy woods and shelving slopes, from which a grand panoramic view is obtained.

The country around affords many very picturesque rambles, down lanes fenced by walls of stone, mostly bordered with Ash, Hazel, wild Roses, and beds of Fern; while the walls, if old, are overspread with Mosses, small Ferns, wild Strawberries, Geranium lucidum, and Lichens and Mosses innumerable.

The woods consist chiefly of Oak, Ash, and Birch; here and there the Wych Elm, with underwood of Hazel, White and Black Thorn, and Hollies. In moist places Alders and Willows abound, and Yews among the magnesian limestone rocks. The Sycamore, too, is much grown for coppice wood; but I believe it must have been introduced, as I think it was only brought from Germany two hundred years ago. Amongst the smaller vegetable ornaments must be reckoned the Bilberry, never so beautiful as in early spring, covering the rocky knolls with a pure mantle of fresh verdure, more lively than the verdure of the open fields; the Broom that spreads luxuriantly along rough pastures, interveining the steep copses with its golden blossoms; the Juniper, a rich evergreen that thrives, in spite of cattle browsing, on the unenclosed parts of the mountain fells; and there is everywhere an endless variety of brilliant flowers in the fields and meadows.

I must at present omit to notice the Lichens and Mosses; which in their profusion, beauty, and variety exceed those of any other locality I ever visited.

The flowering shrubs grow luxuriantly and bloom profusely down to the very verge of the bay. The Aucuba japonica flourishes well, and Colletia bictoneusis, that singular Chilian shrub, endures the winter in the gardens of Abbot Hall.

One word as to the antiquities, and the Priory Church of Cartmel, founded 1188, or a little later than the beautiful Abbey of Furness. The changes in architecture are very striking from the Norman to the early English period, and to the present time. In the old library in the vestry I was shown some rare and curious books, among which were the second part of the "Faerie Queene, containing the fourth, fifth, and sixth bookes, by Ed. Spencer, printed at London, for Wm. Ponsonby, in 1596;" a black letter Bible in 6 vols., printed at Basle in 1502; a quarto copy of Thomas Aquinas in black letter, printed at Venice in 1506. The ancient parish register is three hundred years old, and an umbrella is said to be two hundred years old. The church is splendidly restored, and the fine old oak carving is alone worth a visit to this venerable pile.—D. Ferguson.

Ferns and Flowers in the Neighbourhood.

Allosurus crispus, Parsley Fern.
Asplenium Adiantum-nigrum, Black Maiden-hair Spleenwort. Varieties—obtusatum, acutidentatum.
Ruta-Muraria, Rue-leaved Spleenwort.
Trichomanes, common Maiden-hair. Varieties—ramosum, confluens, serratum, incisum, depauperatum, multifidum.
viride, Green Maiden-hair Spleenwort.
Athyrium Filix-femina, Lady Fern. Varieties—depauperatum, parviceps, purpureum, diffusum, Barnesii, &c.
Blechnum Spicant, Hard Fern. Varieties—furcatum, strictum, and projectum.
Botrychium Lunaria, Moonwort.
Ceterach officinarum, Scaly Spleenwort.
Cystopteris fragilis, Brittle Bladder Fern.
Lastrea cristata. Varieties—spinulosa, uliginosa.
dilatata, Broad Buckler Fern. Varieties—collina and dumetorum.
Filix-mas, male Fern. Variety—Palacea.
montana, Mountain Fern.
rigida, Rigid Fern.
Ophioglossum vulgare, Adder's Tongue.
Osmunda regalis, Royal Fern.
Polypodium Dryopteris, Oak Fern.
calcareum, Limestone Polypody.
Phegopteris, Beech Fern.
vulgare, Common Polypody. Varieties—acutum, serratum, obtusum, coriaceo-bidatum, interruptum, lobatum cristatum, pulcherimum, serratum, &c.
Polystichum aculeatum, Prickly Shield Fern.
angulare, Soft Prickly Shield Fern. Varieties—triplnnatum, proliferum, lobatum.
Pteris aquilina, Brake.
Scolopendrium vulgare, Hart's Tongue, very common in this neighbourhood. The following varieties have also been found:—undulatum, alatum, cornutum, marginatum, polyschides, projectum, multifidum, digitatum, irregulare, limbospermum-cristatum, sagittato-marginato-cristatum, divaricatum, &c.
Adoxa moschatellina, Tuberous Moschatel.
Anagallis tenella, Bog Pimpernel.
Antennaria dioica, Mountain Cudweed.
Anthyllis vulneraria, Lady's Fingers.
Aquilegia vulgaris, Columbine.
Arenaria verna, Vernal Sandwort.
Asperula cynanchica, Squinancywort.
odorata, Sweet Woodruff.
Astragalus glyciphyllos, Milk Vetch.
Atropa Belladonna, Deadly Night-shade.
Arum maculatum, Cuckoo Pint.
Agrostemma Githago, Cockle.
Agrimonia Eupatoria, Common Agrimony.
Bryonia dioica, Red-berried Bryony.
Convolvulus Soldanella, Sea Bindweed.
Campanula latifolia, Giant Bellflower.
Chelidonium majus, Common Celandine.
Cichorium Intybus, Wild Succory.
Cochlearia anglica, English Scurvy Grass.
Convallaria majalis, Lily of the Valley.
Comarum palustre, Marsh Cinquefoil.
Cotyledon umbilicus, Navelwort.
Crithmum maritimum, Samphire.
Daphne Laureola, Spurge Laurel.
Digitalis purpurea, Foxglove.
Diotis maritima, Sea Cotton Weed.
Drosera longifolia, Long-leaved Sundew.
rotundifolia, Round-leaved Sundew.
Epipactis ensifolia, Narrow-leaved Helleborine.
latifolia, Broad-leaved Helleborine.
Eupatorium cannabinum, Hemp Agrimony.
Fedia olitoria, Corn Salad.
Fumaria officinalis, Fumitory.
Ornithogalum luteum, Yellow Star of Bethlehem.
Galium pusillum, Least Mountain Bed-straw.
Genista tinctoria, Dyer's Greenweed.

Geranium lucidum, Shining Crane's-bill.
sanguineum, Bloody ditto.
Phæum, Dusky ditto.
sylvaticum, Wood ditto.
molle, Dove's-foot ditto.
pusillum, Small-flowered ditto.
Robertianum, Herb Robert.
Glaucium luteum, Yellow Horned Poppy.
Gymnadenia conopsia, Aromatic Orchis.
Habenaria chlorantha, Yellow-green Butterfly Orchis.
viridis, Frog Orchis.
Helianthemum canum, Hoary Dwarf Rock Rose.
vulgare, common ditto.
Helleborus viridis, Green Hellebore.
Hippuris vulgaris, Mare's Tail.
Hypericum androsæmum, Tutsan.
montanum, Mountain St. John's-wort.
Humulus lupulus, Hop.
Inula Conyza, Ploughman's Spikenard.
Helenium, Elecampane.
Lathræa Squamaria, Greater Toothwort.
Chrysocoma Linosyris, Flax-leaved Goldilocks.
Listera nidus-avis, Bird's-nest Listera.
Lysimachia vulgaris, Yellow Loosestrife.
Meconopsis cambrica, Welsh Poppy.
Melilotus officinalis, Yellow Melilot.
Myrrhis odorata, Sweet Cicely.
Neottia spiralis, Common Lady's Tresses.
Ophrys muscifera, Fly Orchis.
Orchis mascula, Early Purple Orchis.
morio, Green-winged Meadow Orchis.
maculata, Spotted Palmate Orchis.
pyramidalis, Pyramidal Orchis.
Origanum vulgare, Common Marjoram.
Parietaria officinalis, Common Pellitory of the Wall.
Paris quadrifolia, True Love.
Parnassia palustris, Common Grass of Parnassus.
Pinguicula vulgaris, Butterwort.
Polygonatum multiflorum, Solomon's Seal.
Primula farinosa, Birds'-eye Primrose.
White Beam, Pyrus Aria.
Sambucus Ebulus, Dwarf Elder.
Sanguisorba officinalis, Great Burnet.
Sedum Telephium, Orpine.
album, White Stonecrop.
rupestre, Bristol Stonecrop.
anglicum, White English Stonecrop.
Silene maritimum, Sea Campion.
Solanum Dulcamara, Bittersweet, Woody Nightshade.
Solidago virgaurea, Common Goldenrod.
Statice Limonium, Lavender Thrift.
Thalictrum flavum, Common Meadow Rue.
Trollius europæus, Mountain Globeflower.
Verbascum Thapsus, Great Mullein.
Veronica spicata, Sweedwell.
Taxus baccata, Common Yew.
Primula veris, Cow-lip.
elatior, Oxlip.
vulgaris, Primrose.
Hyacinthus non-scriptus, Harebell.
albus, White Harebell.

AUTUMN AND WINTER-FLOWERING PLANTS.

Acacias.—The Acacias are a useful class of plants, as they can be wintered in any house where the temperature ranges from 35° to 40°, care being required not to over-water them in the short days; but as the days lengthen, and sun strengthens, let them have all the benefit of the sun possible, when they will begin to show signs of moving, then every attention should be paid to them with water. If allowed to come into bloom without any assistance, they will stand longer in bloom, and be richer in colour. When done flowering, prune back into shape, when they may be put in a frame for a short time. If the weather is bright, let them have a gentle touch with the syringe in the afternoons. In about three weeks let them be examined, when those that require repotting should have pots a size larger, using half loam and peat, with a good dash of silver sand. If a cold frame can be had, place them in it, and keep it a little close for a few days, shading if the sun is at all bright.

When they begin to grow, give more air and less shading. If the frame is a moveable one, let it be raised 6 inches from the ground by placing a couple of bricks under each corner; this will give a good circulation of air, having the lights at hand to put on in case of heavy rains. The pots should either be placed on coal ashes or boards, or whatever is at hand, so that it will keep worms from getting into the pots. Let them have every attention in watering throughout the growing season, and on very bright days throw a light shade over them for a couple of hours, doing away with it as they finish their growth, when they should have full exposure to the sun, so that the wood may get perfectly ripened before the short days return. Cuttings root readily if taken off at a joint, and put into a pot of sand and leaf soil with a bell-glass over them, and placed in a gentle heat.

Lantanas.—These are fine autumn-decorative plants, some of the newer sorts being a decided improvement on older varieties. The many different shades of the flowers make a collection of them interesting.

With a little assistance in the way of heat, large plants can be grown in one season, in comparatively small pots. Cuttings which were potted-off a month ago, will have got over the potting and started to grow. At this stage, and all through the growing season, let them have a night temperature of not less than 65°, with plenty of moisture, allowing the house to rise to 80° and 85° by day, shutting up early in the afternoon, to retain all the sun heat possible, when the plants should be well syringed overhead. Before requiring another shift it should be decided in what form they are to be trained. If bush form, which is the most common, pinch the leading shoot when about 9 inches high, when the side shoot will soon begin to push. Pinching should be attended to regularly as long as required, not letting the shoots run beyond, perhaps, two pair of leaves, further than necessary. This both weakens the plants and loses time. The last pinching, especially, should be performed at one time, so that the plant is in flower at every point at the same time. We are rather partial to standards, from 1 foot to 18 inches high, in 7 and 8-inch pots, trained the same as tree Mignonette. These are nice objects to mix amongst zonal Geraniums. Most of them being of a yellow or orange colour, they group well with the Geraniums. If removed to a cooler house just as the flowers begin to open, they will stand longer, and the colour will be richer. The last pinching should be done about six weeks before the plants are required to be in flower. They thrive well in a mixture of fibry loam and leaf mould, with a sprinkling of silver sand. After the last shift, and when the pots are getting full of roots, the plants will be greatly benefited by regular watering with manure water, made of either deer or cow dung, with a little soot mixed along with it.

When the plants are done blooming, let them be well ripened off, much the same as Fuchsias, then store them away in any out-of-the-way place all the winter, just keeping frost from them, until the following February, when they can be placed in a vinery or Peach house at work, where they will soon break, when cuttings can be taken, and the old plants treated much the same way as Fuchsias in repotting and pinching, when they will come in very early. Many of the varieties are handsome as bedding plants, being extremely pretty as an edging to either Coleus Verschaffeltii or Iresine Lindeni. When so treated they require pegging down.—A. H.—T. (in *The Gardener*).

GRADATION OF COLOURS IN GERANIUMS.

I want to make a flower-bed of Geraniums, either from white to crimson, with Christine for a middle shade, or from salmon to scarlet. There ought to be a light pink between Madame Vaucher and Christine, a deep rose above Christine, and then crimson, about five rows altogether.—B. B.

The following we think would suit you:—Madame Vaucher; Madame Werle, or Blue Bell; Christine; Amy Hogg, or Madame Barre; Vesuvius, Jean Sisley, or Tom Thumb.

Mouse Traps.—I do not envy your correspondent "Broad Bean" his energy and tact for overcoming difficulties, seeing that he finds a very great and troublesome one in putting a piece of wire through a Pea before he can use the trap I advocated. I assure him he need not take the trouble to soak the Peas all the time there are wrinkled Marrow Peas in plenty, which are those I use, and small bradawls with which to pierce them; neither has he any occasion to "make" the wire, for with a few pence he can purchase enough wire to last him for years, and with a pair of small pliers he may cut in five minutes as many pieces of wire as will last him any length of time. There is one more advantage in using my trap which I did not mention—viz., in nine cases out of ten when the mouse is caught the Pea is not injured for future use, and the trap may be instantly set again without the trouble of getting fresh thread or string as used in the one advocated by "Broad Bean."—Thomas Record.

CARTON.—No. 1.

The Seat of the Duke of Leinster.

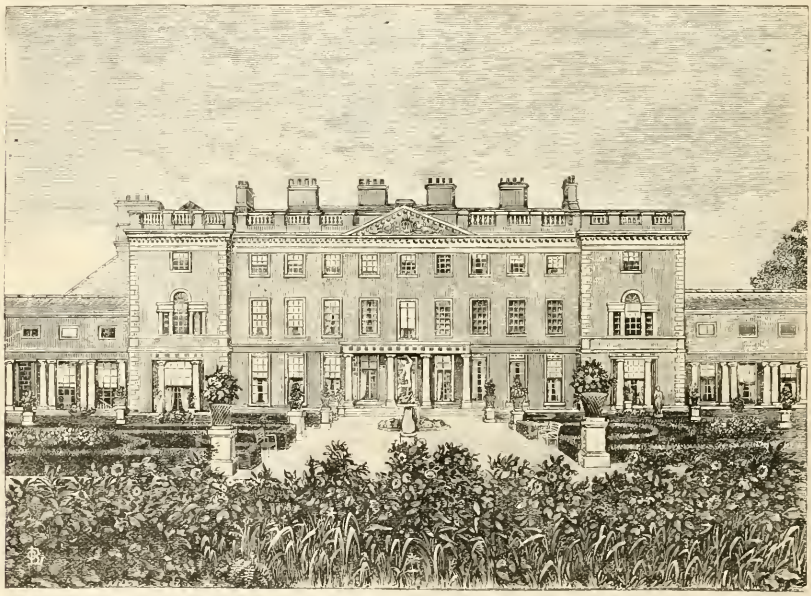
One can hardly write of Carton, even in a gardening point of view, without taking a glimpse at the traditions of the place

and the history of its noble owners. As far as we know, there is no other garden in Ireland that has such a history of unbroken greatness as Carton, and it has been a source of much pleasure to us for many years to observe the steady improvement going on, and that without disturbing the distinct features of the place.

Maynooth Castle was the original residence of the Kildare family. The manor of Maynooth in 1176 was granted by Strongbow to Maurice Fitz-Gerald, who erected the castle for protection against the incursions of the natives. His son Gerald, first Baron of Offaly, obtained from John, Lord of Ireland, son of Henry II., a new grant of sundry lordships. Thomas, second Earl, was married to a daughter of the Red Earl of Ulster, and sister to Ellen, the wife of Robert Bruce, King of Scotland. During the latter half of the fourteenth century Maynooth was one of the border fortresses of the Pale, or English possessions, in the defence of which Maurice, fourth Earl of Kildare, distinguished himself. John, the sixth Earl, enlarged the castle (1426), and it was then said to be "the largest and richest earl's house in Ireland."

Then came the wars, in which the youthful Thomas Fitzgerald, Lord Offaly, took such an active part; but we must leave the exciting and heroic defence of the castle, only quoting an episode when it was betrayed. When the youthful Offaly heard of his father being beheaded in the Tower of London, he renounced his allegiance to the king, gave command of the castle to his foster-brother, Christopher Parese, and went into Connaught to levy forces. Parese informed the enemy that for a certain sum he would let them into the castle; the base work was accomplished, and Parese appeared before the Lord Deputy to claim his hire. The Lord Deputy ordered the bribe to be paid, and immediately ordered the traitor to be "cut shorter by the head," declaring thereby, that although for the time he embraced the benefit of the treason, he could not digest the treachery of the traitor.

In those times we find that the Earl of Kildare "was the



Carton. One-third of the Garden Front.

greatest improver of his landis in this land," and if we could give the splendid set of plans of cottages prepared by and carried out under the direction of C. W. Hamilton, Esq., it would be seen that our new noble Duke of Leinster has no superior in discharging the attributes that belong to his princely inheritance, and in patriarchal care for all that dwell on his property.

Through the ravages of war Maynooth Castle fell into dilapidation, and for a long period was not inhabited. Carton at this time was not a chief residence, and was let on lease to nobles of distinction. Among the notables was the Duke of Tyrconnell. At that time Carton was said to be "a very fine house, with all manner of convenient offices and *fine gardens*." Robert, nineteenth Earl of Kildare, repurchased the lease of Carton with the object of making it his principal residence; and so energetically did the Earl go to work in adding to and improving the mansion, that within the year in which the works were commenced, the beautiful ceiling of the dining-room (now the saloon), was finished by the Italian artists. This distinguished Earl died before the works were completed, leaving the care of carrying them on to his gifted Countess, who worthily carried out the trust. A sum of over £21,000 was expended in improving Carton at that time. This sum represents an enormous amount of labour and materials at that date in Ireland.

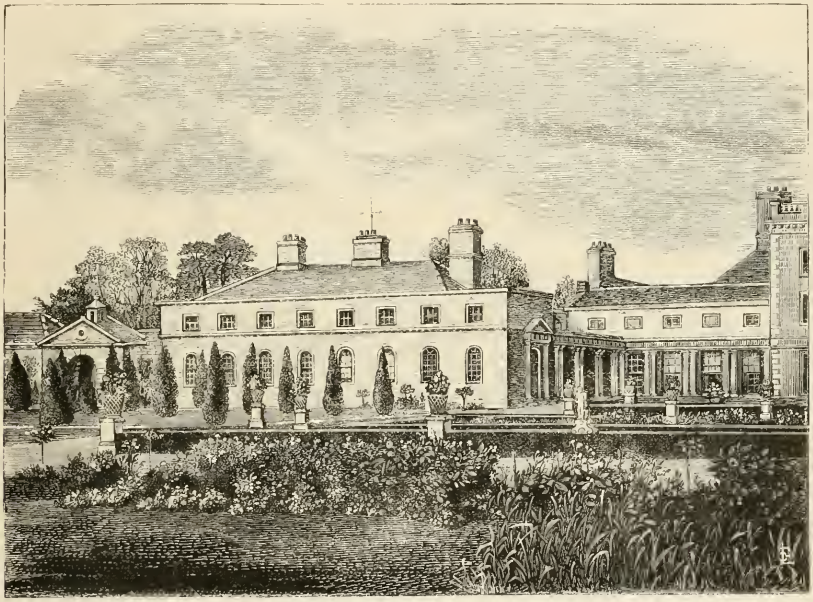
It is worth notice in the history of Carton that James, twentieth Earl, took to planting and improving the park; some 1100 acres were enclosed by wall at that time, and four new lodges and gates erected; the Earl and Countess took great delight in planning bridges and drives, and their works bear testimony to their good taste and knowledge of the capabilities of Carton. In the new enclosed part of the grounds there stood a cottage in the way of improvements; in this cottage lived an old dependent, and it is characteristic of this noble family that the old man "must not be disturbed until Nature's course had run." This "watertown cottage" is now the cottage garden of Carton, of which we shall have more to say. We must leave Earl James after stating that he enlarged the kitchen garden and orchard to twenty-six acres, good Irish acres. What say garden economists to this, who would supply all that a nobleman's kitchen requires from one scrimp acre? Carton came down to the present Duke in a thriving state, and he has added many marks of valuable improvement over the estates, as well as on the mansion and gardens.

The ancient name of Maynooth, Magh Nuadhat, signifies

Plain of Nuadhat. This well expresses the position of Carton, which stands on an extensive table land about 200 feet above the sea level. The vast estates of the Duke stretch out on every side in unbroken fertility.

Looking at the outside of the demesne of Carton there does not appear a leading approach—that from Maynooth is the most important, as the spacious avenue connects the town with a chief entrance gate. In former times straight avenues were admired features of Carton; we think there is no form of planting can produce such grand effect as a well-designed avenue on ground and space like that at Carton. As we walked down the Maynooth avenue recently the stunted unhealthy trees on each side seemed to say, "Pity us, we are outside the gate, speak of our wants to our noble master; if it be required let us be removed, and more fit subjects planted in our place, but we cannot bear to be a reproach." This appeal we felt so strongly that we submit it to the Duke himself, who never turns a deaf ear to pity's call. No amount of cultural skill will make these trees worthy of the position. If this avenue should be replanted it should not be done in single lines, which will always appear naked on such an open plain and in such a spacious avenue. Acer macrophyllum and the English Elm are perhaps the best two trees for planting the outside lines of this avenue. It is after entering the park within the gate that regret is so much felt that the avenue trees are not in any degree to be compared to the healthy trees everywhere seen over the breadth of the park.

The chief tree in the park is the Beech; there are some goodly-sized Oaks, but comparatively few with the character of an "old Oak." There is but a small proportion of evergreen trees about Carton; there are some fine specimens of the Silver Fir, especially those by the slip of water on the east of the kitchen garden. On entering from Maynooth the impression is that we are in rich pastures and a tame wooded landscape, but when we approach the front of the mansion the scene is of great grandeur; the splendid frontage of the mansion, the



Carton. One-third of the Garden Front.

quaint Italian garden, the spiral evergreens, the fine glades expanding out into undefined distance, with herds of fine cattle browsing in such quiet repose, and then the eye rests on the distant Dublin and Wicklow mountains. This is a rare composition, and is a fine illustration of a ducal residence.

Further remarks will be confined to details of the gardens and gardening at Carton.

FORCED STRAWBERRIES FAILING.

Having been very successful in forcing the Strawberry for some years until now, I am not able to say why I have been so unfortunate this season. The kind I force is Eclipse, and when the berries have well set after the blossom most of them remain stationary, and cease to swell, and when those that do are nearly full-sized spot comes on and rots them.

I have occasionally observed something of this kind in other years, but it was very partial, and I have thought that the cause was too much damp in the house and syringing; but that is not the cause this season, as I have only syringed twice, and have not had the house so full of moisture. The watering I attend to myself, and I have air on night and day. The plants have not experienced any check that I am aware of. They looked strong and healthy when first put into gentle heat. They are on a shelf near the glass, about 2 feet from it, under the ridge of a span-roof, but there is nothing to obstruct the light, as the ridge is narrow, running east and west, and they are near to the ventilation. If you can throw a little light on the cause of my failure, so that I may avoid it in future, it would be doing me good service.—E. T. J.

With your care in watering, ventilation, &c., we are sorry to say that we cannot discover the cause of the failure in your Strawberries. Ours, though fair, have not done so well as last year, and we attribute this chiefly to the want of the thorough ripening of the buds in the autumn, and the great amount of dull, damp weather this spring. We would try

what effect additional ventilation, and along with that more heat, will have in dull weather. We presume that your pots are well filled with roots, for we have sometimes noticed the evil you complain about when the pots were large, the plants healthy, but the roots scarcely arrived at the sides of the pot. For early work, the more the whole ball is like a cheesecake with roots the better will the plants do, and hence rather small pots early often succeed better than large ones.

THE ACHIMENES.

Almost all the varieties of Achimenes are pretty, all very easily grown, and all most accommodating as to the mode of growing them; pot, pan, or suspended basket being equally adapted for their feeding ground. They naturally divide themselves into two sections: of one of these, the old-fashioned A. coccinea of Persoon, Cyrilla pulchella and Trevirania coccinea of others, is the type; of the second, or large-flowered section, A. longiflora may be regarded as the representative. The plants of this latter section are best adapted for growing in masses or in suspended baskets, and when well done are, no doubt, effective grown in either way. We must, however, plead guilty to a strong predilection in favour of the first-named division. The habit of the plants composing it is much better adapted for making handsome pot specimens, and what the flowers lack as regards size is more than made up by their dazzling brilliancy and profusion. As generally grown—to wit, an agglomeration of crowded stems in the same pot—the effect of any of the varieties is, to our mind, not for a moment to be compared to the beautiful unity and effect of plants of the same kind when grown to single stems, and forming regular and brilliant little pyramids of floral beauty. We rarely, if at all, see them grown in this way, and it is for this reason we bespeak the attention of growers to the matter.

By way of example, let us take a pot of A. coccinea, or its near ally A. rosea. When grown in the ordinary way—namely, from a number of its scaly imbricating tubers in the same pot—it has, notwithstanding the beauty of its bright gay little flowers, a weedy and wispish look. Not so if the largest and strongest of the tubers be selected and potted singly into small pots (say 60's), in a light, rich, open compost, consisting of, say, two parts light fibrous turfy loam, one of sandy peat (heath mould), one of leaf mould, or dry very rotten cow dung, another of charcoal and silver sand. As they are rather impatient of wet at the roots, the drainage should be abundant and carefully arranged.

Being placed to start in a lightsome situation and genial growing warmth, ranging from 65° to 75°, or a little over, growth soon commences. As soon as leaves are formed a gentle dewing of tepid water every morning is most beneficial. When the roots fill the pots, shift into pots of a size larger, until, if all goes on well, they are in 6 or 8-inch pots. In these they should present the appearance of symmetrical pyramids, 18 inches or more in height from the base to the apex. Or, instead of potting the tubers singly in small pots before starting them, a number of them may be placed thinly in the same pot, and when they have made an inch or two of stem, be then lifted carefully and transplanted singly into small pots, placing them in a close, warm atmosphere till they are established.

When well established they should have plenty of air (but no cold currents of it), and be kept well up to the glass, in order that they may make stocky, short-jointed, floriferous growths. A sufficiently strong but finely attenuated stake should, at an early stage of its growth, be placed to each plant, and the main stem regularly and gently tied-in as it progresses. Besides the daily tepid dewing overhead with the syringe, an occasional mild dose of moderately tepid manure water to the roots will be no less acceptable and beneficial.

Instead of growing the plants direct from the tubers, the prettiest specimens possible may be grown from cuttings. These may be made early in the season by taking two or three joints from the young growths, when they are sufficiently advanced to afford them. They should then be struck singly in small pots, shifting and growing them in the usual way. By striking in the same way, still later in the season, the ends of the lateral shoots, charming little cone-shaped plants covered with flowers may be had, than which nothing can look neater or prettier in the plant house.

In room or table decoration these are particularly calculated to play an imposing part; as in this way the most symmetrical and profuse-flowering little specimens may be grown in thumb, or even thimble pots, thus making them peculiarly available for the table.

It may be well here to remark, that if striking the cuttings and growing these miniature pyramids be deferred to a rather late period of the year, success will not be so assured, as in these late-grown plants scaly bulbils are formed in the axils of the leaves instead of flowers. Besides A. coccinea, which we have taken as an example, and the similarly habited but less showy A. rosea, these beautiful results of the hybridist's skill and application, Meteor, Dazzle, Carminata elegans, Purpurea elegans, and later varieties of the same habit, are equally adapted to being grown to single stems. From their lax habit and large flowers, varieties of the longiflora section are not adapted for this style of growing, and are best, perhaps, grown in masses, as is the present practice.—(*Irish Farmers' Gazette.*)

WORK FOR THE WEEK.

KITCHEN GARDEN.

Now that most of the seeds of weeds lying near the surface of the soil have germinated, every part of the garden ought to be thoroughly hoed in dry weather; the cleanliness of the garden for the season greatly depends on the complete destruction of all seedling weeds at this time. Ground from which *Broccoli* and other Winter Greens have been cleared should be manured, and trenched or dug as may be requisite for the succeeding crop; if it is intended for *Celery*, the trenches should be made at once so as to obtain a crop of Lettuce or Spinach between the rows. The ground should now be prepared for planting-out the early crops of Celery. Trenches 3 feet apart, 18 inches deep, and the same in width, should be thrown out, into the bottom of which dig some well-rotted manure; this will bring the bottom of the trench to within 6 or 8 inches of the surface. The dung and soil should be well mixed before turning out the plants. To grow Celery of large size a wider space between the rows is requisite, but the above will be sufficient for moderate-sized heads. Well harden-off the plants before transferring them to the trenches. Attend to the plants for succession crops. Plant out *Basil*, *Capsicums*, *Marjoram*, and a few *Tomatoes* on the south border against the wall, but the main crops had better be delayed a week. Prepare some fermenting materials, such as leaves, dung, or short grass, for making ridges for *Cucumbers*, *Gherkins*, and *Vegetable Marrows*. Stir the surface of the soil amongst all growing crops.

FRUIT GARDEN.

Proceed with the disbudding of Peach and Apricot trees, leaving for the present, however, any shoot the leaves of which overhang and shelter fruit, but the points of such should be pinched-out in order to afford those intended to be left at the final disbudding every encouragement. It will also be necessary to go over Pear Plum, and Cherry trees in order to remove gross shoots, and to stop those not wanted for laying-in. This, repeated as may be necessary during summer, is greatly preferable to the old practice of allowing the shoots to remain upon the trees till mid-summer, and then cutting them back to two or three eyes. If red spider make its appearance on Peach and other fruit trees on the walls, it must be destroyed by repeated washings with the engine; if likely to maintain its ground mix a little sulphur with the water. Where green fly is troublesome on the trees a portable fumigating cover ought to be constructed, so as to render the destruction of the black and green fly as certain as when the operation is performed in a hothouse. Where more effectual means cannot be had, mix tobacco water at the rate of one pint to three gallons of water, and wash with the engine as for red spider. In cold exposed situations, instead of entirely cutting out each useless shoot of Apricots, &c., pinch them back to one or two eyes; these will form short spurs during the summer, and prove useful in contributing towards next season's crop, as the flowers produced on the spurs generally set better than on the young wood usually left.

FLOWER GARDEN.

In this department the next week or two will be devoted to filling-up the flower-garden beds and clumps intended for the summer and autumn display; and as soon as a change takes place in the weather, every exertion should be made to get the planting-out completed with all possible dispatch. If the plants intended for each bed have been previously determined and hardened-off, no great difficulty will be met with in filling-up the beds. Some allowance, however, must be made in

regard to the time when it is desired to have the principal display of flowers; if early, the plants must be placed closer together, and need not be stopped; if not before a later period in the summer, somewhat thinner, and the flower-buds should be pinched off as they appear till the plants have filled the beds. There are two objects principally held in view in arranging the planting of parterres and flower gardens; one is to produce a striking effect by employing plants only of a decided colour, principally red, blue, and yellow, using white for separating the different divisions. Where the colours are well contrasted this plan is very effective, particularly when viewed from a distance, and is well adapted for situations where the beds are not numerous, and where there is a considerable breadth of either grass or gravel to overpower. A repetition of the same arrangement, however brilliant, is seldom so pleasing on a close examination as where variety both in form and colour has been called in, and where the gradations into which the primary colours run, have been arranged in accordance with the rules governing their distribution. There is now no lack of colour to effect this, as nearly every class of bedding-out plants presents sufficient variety for the purpose. In single beds, or in mixed flower gardens, much may be accomplished in this way by using a decided colour for the centre and surrounding it with plants of the same kind but of less intense colour, which should gradually diminish from the centre, in a point, to the sides. This, with well-contrasted edgings, principally for the larger beds, will be found more generally pleasing than where masses of one colour are only employed. Now will be the time for the amateur to make the necessary additions to his collections of Tulips, and I would advise all intending purchasers to visit various beds and select for themselves. It is a much more satisfactory plan than buying them in dry roots, for the Tulip is so sportive that a change of soil and situation will make them assume a wholly different character the succeeding season. Mark in a book all which are defective, particularly those having a stained base or stamens; an inferior form may be tolerated for a time, but impurity never. Plant out Dahlias, place their supports to them, mulch the surface of the ground, and water regularly when they require it. Hollyhocks, too, may be treated in the same manner. Old plants which are throwing-up four or five stems should be reduced to two or three, and these should be neatly tied-out to short stout stakes, so that each spike may stand free of its neighbour. Tie-up Pinks and remove the superfluous shoots. Part Polyanthuses, placing them in a shady cool spot; when this cannot be secured naturally, artificial shade must be made.

GREENHOUSE AND CONSERVATORY.

Although slight shading is indispensable on the forenoons of bright warm days, it must be used sparingly when the weather proves unsettled, for without an abundance of light flowers never colour properly, and they soon fade if kept in too shady a position. Air should be admitted freely whenever the weather will admit. When it can be accomplished, watering should be done in the morning, in order that the superfluous moisture may dry up before evening, so as to avoid night damps, from which there is some danger during the present state of the weather. The shoots of the New Holland twiners, when flowering is over, should be well trimmed-in before growth commences, thinning the main branches where necessary by cutting out those which are weakly, always having an eye to securing plenty of young wood towards the bottom.

STOVE.

Where any considerable number of plants are grown there can be nothing like a set time for repotting them; in doing this the time at which any particular class of plants are intended to flower, and the purpose for which they are required, must be kept in view. Most likely many stove and softwooded plants will now require a shift to grow them on. In addition, plants intended for blooming in autumn and winter, and which have been chiefly propagated this spring, should now be potted-off, or any straggling shoots pinched back to form them into compact plants; after keeping them close for a week or ten days encourage them to make fresh roots, and gradually allow more air and light until they will bear a free exposure to both. As stove plants advance allow them plenty of room, particularly fine-foliaged plants. The syringe must be in constant use to keep down insects, assisted by fumigation where thrips is likely to become established. The white and brown scale are best kept under by carefully handwashing the plants with a strong lather of brown soap and water. For this purpose soft brushes or pieces of sponge should only be used, that no injury may be done to the leaves. Achimenes should now be placed where more air can be given; stake them out neatly as the plants advance. Gloxinias also require a partially shaded situation and moist heat. Gesneras may be treated in the same way, with the addition of more light. Amaryllises, &c., should be removed to the conservatory or show house for blooming, where they are a great acquisition. Mark any very striking varieties for seeding; after blooming plunge them in a little bottom heat in a frame near the glass to perfect their growth. Fires to the stoves and Orchid houses will still be necessary.—W. Keane.

DOINGS OF THE LAST WEEK.

KITCHEN GARDEN.

As we rather expected, our first sowing of Carrots has come up rather patchy. We are quite satisfied that the seeds were good, as the second sowing is coming up well. We have sown over again pieces of the first-sown ground by drawing drills in the vacancies, and that will make a third time of drawing. We took care not to injure a plant of the first sowing, as they will come in early to succeed others in frames and under protection. We believe our Carrot seed suffered from the snow and frost just when the seeds had germinated freely.

Put in a succession of crops as previously detailed, and when the ground was at all dry ran the hoe among young crops of Parsnips, Onions, Carrots, &c. The Onions do not appear to have suffered from the frost, though sown early. The scuffle with the Dutch hoe is the best of all means for keeping cropping ground free of *weeds*. Weeding and carrying off weeds, or burying them in heaps, are almost out of the question in these days. The use of the Dutch hoe before the weeds are 2 inches in height leaves an open surface instead of a consolidated one behind the workman, and the sun soon puts the weeds out of sight. If heavy rains come immediately after such hoeing, it may be necessary to hoe again before long, to prevent the weeds taking fresh hold. In all such cases of early hoeing on cultivated ground a rake is quite unnecessary. On the contrary, now, in the case of a gravel walk overrun with small weeds, a good raking is important after hoeing. Repeat the raking several times on a sunny day, in order that the smallest weeds may be killed. In such a case it is also important that the small weeds should be cut up before the seed is formed or approaching maturity, otherwise there will soon be a batch of seedlings. Hence, where there are only a few weeds on walks, it will be found the most economical plan to pull them up and at once carry them away in baskets.

It is astonishing what an effect constant cutting at the surface will have in the destruction of some of the worst root-weeds, as the white-flowered Convolvulus, the greatest annoyance when it establishes itself in a garden. Perseverance in cutting the young shoots when 2 or 3 inches in height will at last exhaust and kill the white fleshy roots; but the best remedy we ever found, where such a plan could be adopted on fallow ground, is to cut the tops with a hoe, and then cover all over with 4 inches of short grass from the mowings of lawns. No shoot coming through this mat, the large roots will perish.

Asparagus is a regular tell-weather plant. Ten days ago we had it in great abundance. For four days, since the weather has become colder, we can scarcely get it long enough for use without cutting it beneath the surface, which we do not practise generally. It will further prolong the Asparagus season. We generally give a sprinkling of salt before the heads begin to appear; not so much in order to increase the size of the shoots as to keep the ground free from weeds. This season we have neglected doing so, but the salt will have a greater effect when applied after the plants are allowed to grow freely. With a porous bottom, so that water may not stand within 3 feet of the surface, almost anything may be done with Asparagus if we can sprinkle salt on the ground several times from June to September, and give manure waterings if the weather is at all dry.

To Cabbages, Cauliflowers, and late *Broccoli* we gave a good watering of house sewage, and for days afterwards we could fancy we saw them growing.

Sowed *Basil, Marjoram, &c.*, under glass to be pricked-out. Pricked-out *Celery* plants, and as we are late this season we shall keep them under glass in heat until they are strong, and then harden them off by degrees before full exposure. We have sown at Christmas and had no more bolted heads than when

we sowed in March; but sowing so late, with ordinary care in watering, there is less risk of run heads in early Celery, and if a little heat can be given to bring them forward there will be no great difference in the taking-up time. We also take up later than we used to do, as now we should have a difficulty, with our limited space, in keeping on regularly from July; and many people imagine that Celery is not quite so good early in the season. Many are deterred, too, from the heads running to seed when forwarded thus early, but if the roots are not allowed to become dry, and there is only one chief earthing-up, there is no more danger of early Celery bolting than of that which is later.

FRUIT GARDEN.

Gooseberries, whether owing to a rough protection from the frost and snow by shaking a little rough hay over them, also Currants, will be a fair crop. A good many fruit of the former turned yellow and fell, and the Currant crop will be shorter than usual. Raspberries showed early this season, and they, too, had a little hay protection thrown over them. Even now, though many of the young shoots near the points of the stems or canes are as brown as if they had been fired, the most of the trusses of the incipient blooms appear to be safe as yet. Plums as standards and bushes have suffered much, but not against walls. Cherries, as standards, are in full bloom this frosty snowy morning, but they seem, nevertheless, to have set thickly enough, though no doubt some will fall. Apricots we fear will be thin. There was a succession of cold wet days when they were in bloom, and we had no sheet or net-covering. Keeping the blooms dry, in many cases, would have saved them. Thinned the foreright shoots, and stopped others for spurs as we had opportunity. It is not wise to put off too long taking away extra shoots. It is not well to stunt the growth too much by removing too many shoots at once. The curtailing the shoots freely acts as a check to the free growth of the roots.

Even when Vines are stopped a joint or two beyond the fruit, it is as well to stop the after part of the Vine first, so as to throw vigour of growth nearer the bottom—say, if the Vine stem is long, doing this stopping at two or three times with a few days' interval between them instead of doing it all at once. After this stopping, too, it is well to allow laterals to grow a little, so as to promote free root-action. When shoots are grown unstopped in order to take the place of older stems next season, their unstopped points, until they have grown the desired length, do much to keep up free growth at the roots, without check.

In early Peach houses the fruit should now be pretty freely exposed to the sun; and extra crops, as hanging shelves of Strawberries, that tend to cause shade, should be gradually removed, as after May Strawberries will come on in cooler houses, frames, and pits.

We have several long rows of *Strawberry plants* in the ground, turned out of 60-sized pots in the autumn, that would lift well either to pot or to go with balls into a slight hotbed; but the main crops out of doors are showing so well and so early, that we hardly think we shall have to fall back on these reserve plants, which we have often found very useful in filling the gap between plants potted in the autumn and the first gatherings out of doors. Set traps for mice in one of the houses, as the mice have injured some large fruit, even before they changed colour, nipping out all the little seeds over the fruit. Even when mice attack ripe Strawberries they often confine themselves exclusively to the seeds dotted along the surface of the fruit. They are almost as fond of these as they are of Lettuce seed. Small as it is, mice will pass by most things to attack new ripe Lettuce seed.

But for scarcity of room at present we should have had many of our forced Strawberry plants turned out in the ground, as the earlier they are planted out the more chance will there be of good gatherings from the early kinds in autumn. There is no plan that will equal this for obtaining large crops the first season after planting. The first summer's yield from such forced plants is always the best. It is well that the plants should be cleaned, all insects, if any, removed, and the pots well soaked with water before they are turned out. Two years ago we saw a piece of Strawberry plants that had been turned out of pots after these had done duty under glass, and very miserable they looked—a practical reason, as their owner stated, for having nothing to do with this mode of treatment. "Watered! Why, to be sure they have been watered every day, and every day they look worse," and well they might. The ground round them was as open and loose as could be, instead of being somewhat firm, and on taking a plant up the ball was found to be as dry as if it had been set for twenty-four hours over a furnace. No daily watering would ever affect such a ball under these circumstances even in a month, and heavy rains would glide over the surface and escape at the sides. As a last resort the plants were taken up, and dipped over the tops of the balls in a tub of water until every air-bubble had escaped, and then when planted they throve better, but nothing in comparison to what they would have done if the pots had been thoroughly soaked before planting took place. Labourers, and even young gardeners, require watching in this respect. Repotting plants with balls dry, is one of the principal causes of decaying health, attacks of insects, and premature death.

Thinning Grapes.—Except in exceptional circumstances, it is not advisable to have more than one bunch on a shoot. When two are left it is often at the expense of having two inferior bunches instead of one good one. In thinning, these matters are of importance. Thin out when the berries are small, so that the scissors may work without much touching the berries that are left. Keep the scissors bright, dry, and clean. Thin only when the bunches are dry, and, unless the day is cloudy, the work is best done morning and evening. Touch the bunch as little as possible, even with the hand, and especially avoid coming against it with clothing or the hair of the head, as these sometimes lead to rusting of the berries, though that is oftener owing to warm sulphur fumes, and warm vapour accumulating in consequence of leaving the houses too long without air in the morning.

ORNAMENTAL DEPARTMENT.

Much outside work was alluded to last week. Never has there been a more favourable time for *fresh-planted trees and shrubs*. Even large trees that we moved with makeshift conveniences look well as yet, but July will be the month to try these large specimens. No water has been given them, but if warm and dry weather come towards the end of the month or the beginning of June, we should like to give them a good watering, as by that time the roots will be pushing pretty freely. We have long thought that drenching the roots of a large tree or shrub transplanted in autumn, winter, or early in spring, was just placing the roots where they would have the chance of rotting in a cold morass. When the roots are making fresh growth, when the soil is becoming warm, and when the water is naturally the reverse of cold, is the most suitable time to give these fresh-planted trees a help from the water-barrel. Even in bright days, when the soil and the nights are cold, it is often better to engine the tops in sunshine so as to lessen perspiration, instead of deluging the dormant roots with water.

Florists' Flowers.—Auriculas will now require protection; if on the north side of a wall, and covered with glass, all the better. If the drainage is efficient, nothing is more beneficial to them after the trusses begin to appear than watering with a solution of old dried cow dung, allowed to stand for a fortnight previous to use. The best Polyanthuses are worth care. Even those not the best we admire for cut flowers, but we must give them up, as we have often had fine rows overnight on which not a flower was left unpecked by the birds in early morn. Carnations and Picotees, especially the latter, will require holding up, and nothing is neater and better than a twisted wire, the flower-stems being placed round and held secure in the twist. The best Ranunculuses, Anemones, and Tulips must be defended from heavy rains and rough winds if the object is to have the finest symmetrical blooms. A little of the care of the old florists is much needed now.

Finished pruning tender Roses. This is quite late enough, but the season has been so exceptional that we did not like to do so earlier. The Yellow Banksian has been producing freely against a wall, the White has not yet opened. We have had a few blooms of other sorts, and shall have plenty in a short time. We have planted standard Roses in the beginning of May, but it is rather late, and what are planted out of doors now should be from pots. We have often a vision of large plants of the finest Roses in large pots and slate tubs under glass, and we have the place suitable if we could only obtain it for that purpose. Of course, it would be years before we had huge, healthy plants, but when obtained, a very little heat would give us Roses for nine or ten months out of the year.

In the flower garden, owing to a press of other work, we are behind with preparing the beds. They are mostly in rough ridges when not planted, but these can soon be levelled and

made fine when the weather changes. However, we do not think we shall be able to plant much out for ten days.

Chinese Primroses.—Pricked off a first lot, and sowed for succession. We have a number of young plants that bloomed finely in 4-inch pots now standing on the north side of the wall of a pit out of doors. Most likely we shall place some of them in larger pots for early blooming, but if we had a spare piece of ground we would turn them out in a shady place, much in the same way as we used to do with Chrysanthemums, Salvias, &c., raising and potting them in the autumn. By these means a plant in a 60, a 48, or a 40-pot now, would become a large plant, that would fill an 8 or 10-inch pot in October, and bloom profusely in the early winter months.

Cinerarias.—The first sowing has just come up; we must sow again. Seedlings in even 4 and 5-inch pots are useful. When large specimen plants are grown, it is well to have known and approved varieties. There is no plan better than to turn out the plants when done blooming in a border covered with light rich compost, and each stool will soon throw out suckers, or fresh shoots from the bottom. These, taken off singly, placed in a small pot, and potted again and again until the little sucker fills an 8-inch or larger pot by October, will make fine specimens after Christmas.

One of the greatest helps we have had in the way of cut flowers for six weeks past, has been the blooms of seedling Gloxinias, which have been yielding most profusely.—R. F.

TRADE CATALOGUES RECEIVED.

W. Bull, King's Road, Chelsea, S.W.—*Retail List of New, Beautiful, and Rare Plants, &c.*

W. Hooper, New Wandsworth, London, S.W.—*Catalogue of Softwooded and Bedding Plants, &c.*

TO CORRESPONDENTS.

*** We request that no one will write privately to any of the correspondents of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely to The Editors of the Journal of Horticulture, &c.*, 171, *Fleet Street, London, E.C.*

We also request that correspondents will not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, if they expect to get them answered promptly and conveniently, but write them on separate communications. Also never to send more than two or three questions at once.

N.B.—Many questions must remain unanswered until next week.

White Primrose Seed (*D. F.*).—We do not know where this can be obtained. Can and will some of our correspondents inform us?

Double Primroses (*A Gardener*).—If you can find a double flower with anthers, applying their pollen to the pistils of single flowers is the most probable mode of obtaining seed that will produce double-flowered varieties. We cannot name the varieties of florists' flowers, they are in legions. There are very many better than the dark Pansy.

Seedling Geranium (*Heron*).—There is a slight difference in the tints of the leaf from other zonals. No one can form a judgment on its merits until after seeing a plant. Send one to the Floral Committee of the Royal Horticultural Society.

Begonias (*H. J. T.*).—There are now so many fine-foliaged varieties that we cannot undertake to name these. In addition to those you have, the following are a few cultivated for their flowers—viz., Prestoniensis superba, Dregei, Ingrami, nitida, digewelliensis, boliviensis, and Veitchii.

Alpine Auriculas (*D. F. J. H.*).—Send your address to the Rev. H. Honywood Dombrain, Westwell Vicarage, Ashford, Kent.

Rose Conservatory (*Tyro*).—From the sketch sent of the house we should conclude that the leaves of your Roses curl from being exposed to too much ventilation when wet from syringing. Do not admit air by side lights so as to cause draughts, till the leaves are dry.

Paradise Stocks (*W. Adams, jun.*).—The Paradise stock is generally grown from layers, and also by forming a "stool," round the shoots of which a mound of earth is formed like a great molehill, and in this they throw out roots during the summer, and in autumn they are removed from the "stool." The Apple you mention is Burr Knot. To propagate without grafting you have only to take off the branches under the "burr," and plant them securely in the ground in a shady place. Water them well, and they will take root.

Flower Garden Plan (*Sunny*).—We think your flower garden very pretty and effective so far as the ground plan is concerned. There is no absolute necessity that you should have the two similar groups, one on each side of the main walk planted alike, though we do not conceal that we are admirers rather of what you call being "so dreadfully uniform." Besides, you might maintain something like uniformity or balancing, and yet use variety in securing somewhat similar colours. We should have liked to have known the size of some of the beds so as to judge accurately of the others. If the narrow beds round the central diamond and a circle at each end can have a centre and an edging, then the three figures referred to should at least have three colours, so that the balancing of colours throughout should be more equal. One bright colour with merely a ring of an edging in each of these large beds would drown, so to speak, the narrow colouring in the narrow beds. Then if you have Perilla round the central diamond it would not be desirable to have Purple King in 9 and 10 close to it and round the half of it. Having Golden Pyrethrum as you have, we would never think of using variegated Chrysanthemum pegged down round Lobelia speciosa. This would be so unnatural that no pegging would make it answer, at least it would be poor when contrasted with small plants of Golden Pyrethrum. Take the following merely as hints:—No. 2, Calceolaria centre, Perilla round, Lady Middleton, edged with dwarf Ageratum; 3 and 4, Tom Thumb the centre, broad band of Bijou, edged with a band of Perilla kept dwarf, or Iresine Lindeni; 5 and 6, Lobelia edged with Golden Pyrethrum; 7 and 8 as proposed, brown Calceolaria edged with Cerastium or small plants of Cineraria maritima; 8 and 9 as proposed, Yellow Calceolaria and Purple King Verbena; 11 and 12 as 7 and 8; 13 and 14 as 5 and 6, and so on.

Sowing Auricula Seeds, &c. (*An Old Subscriber*).—If you send five postage stamps with your address to our office and order "Florists' Flowers," you will have a little book sent post free that answers all your queries about them. A Walnut tree needs no manure. If not growing on a chalk formation, a little lime rubbish forked into the surface soil over the roots would benefit the tree.

Shifting Roses at a Show (*M. W.*).—"At a local flower show a gardener staged twenty-four Roses, three trusses of each, for a £2 prize; and twelve single trusses for a 10s. prize. The twenty-four were very good, but most of the twelve were poor. He waited till the hours were up for any more coming in for exhibition, but no others came for the £2 prize. Then he shifted his best from his twenty-four trusses, and put them into the twelve trusses, and put the twelve from the twelve into the twenty-four. This made him take both first prizes. Was this right, and can one exhibitor arrange another's Roses?" The gardener who acted as you detail, acted fraudulently, and you should inform the Committee of his base conduct. No exhibitor ought to touch, much less arrange another exhibitor's flowers. The two specimens were smashed.

Peach Leaves Blistered (*A. F. C.*).—This is caused by the late spring frosts. Effectual sheltering until the end of May is the only preventive. Pick off all the diseased leaves.

Grapes Rusted (*Subscriber and Friend*).—Your Grapes are very severely rusted. The cause is doubtful. They will probably ripen and colour, but the brown on their surface will deteriorate their appearance.

Grapes Spotted (*Dux Collarboz*).—Your Grapes (no letter with them) are attacked by what gardeners call "the spot." It is an ulcer or gangrene. Cut out every berry that is so attacked, for not one of them will ripen. If the roots of the Vine are outside the house, put a heap of hot fermenting dung on the surface of the soil over them, and keep it mulched all the summer. If the roots are inside, water them copiously with weak tepid manure water.

Vine Leaves Shanked (*Vinus*).—The remedy recommended above is quite as applicable to your case. The ulceration arises from the roots not supplying a sufficiency of sap.

Stockwood Ridge Cucumber and Vegetable Marrow Planting (*A Subscriber*).—We presume you have already sown the seed, and that the plants are potted-off singly and well-established in 4-inch pots. When they are good strong plants harden them off well in a frame, and plant them out in a warm sunny situation sheltered from strong winds. Previous to planting, take out the soil to the depth of 1 foot for about a yard square, and put in 15 inches of hot dung. It should be trodden firmly and then covered with the soil dug out, which will, of course, form a hillock, and, if the soil is not light and rich, some leaf mould and turfy loam may be added. In about four or five days the hills will be warmed, then turn out the plants, water after planting, and cover them with a hand-glass or an inverted wicker basket for a few days, afterwards you can expose them but if you use hand-lights till the no as to admit air daily, and when the plants reach the glass sides raise the hand-lights so as to let them run out. After the middle of June the lights may be removed. Water freely in dry weather. Three Cucumber plants, or one Vegetable Marrow, may be put out on each hillock. The hillocks should be a yard apart, and 6 feet between the rows.

Adiantum—Forced Rhubarb—Frightening Birds (*Lion*).—The Fern, of which you enclose a frond, is not A. farleyense, but a form of A. Capillus-Veneris, and we think that known as Moritzianum. The roots of Rhubarb placed in a cellar last January should without delay be planted out of doors 3 feet apart in good soil, mulching them with some good, short, rather littery dung, and watering with weak liquid manure when they are growing freely. The roots will be useless for forcing next winter, but after they have had two years' growth, or become strong, they may be again used for that purpose. You must put on fresh roots next winter. Rhubarb roots placed in a cellar should have enough water to keep the soil moist. What will answer for scaring birds in one place will not answer in another. For keeping birds from seeds we have not found anything so good as red-leading.

Stopping Scarlet Runners and Peas (*Sutton Coldfield*).—The Scarlet Runners will do equally well, if not better, stopped at 5 feet from the ground, and so will Peas if they have a sufficient number of pods or blossoms below the place where they are stopped. By stopping you will secure better-filled pods, and quantity will depend on the number you leave at the stopping.

Pampas Grass Dying off (*Osbaston*).—We think the cause of the Pampas Grass going off in the winter is the damp soil and low situation inducing in summer a gross growth, which is incapable of withstanding the severity of our ordinary winters. Instead of tying-up the leaves or grass on the approach of severe weather, we would let it be loose, and not be in a hurry to remove it. The Pampas Grass, though requiring rich soil with plenty of moisture in summer, does best in a well-drained soil, and in a high rather than a low situation.

Leptopteris superba Propagation (*J. R. P.*).—We do not know that it can be propagated by the fronds in any way but by laying fronds with ripe spores on a pot or pan of sandy peat, placed in a glass case kept close and very humid. Division may occasionally be practised.

Flower-beds Planting (*W. Palmer*).—The number for the 9th was in type before your plan arrived. No one can be sure of an answer under a week from the date, and more time is generally required. Your group of seven circles is planted on the balancing system—a centre clump, and three the same on each side. We think the proposed plan will look very well and simple. The edgings of Lobelia on one bed and of Golden Pyrethrum on the other

come in well. If you had a line of purple between Little David Geranium and the Golden Feverfew it would improve it, as Iresine Lindeni, or even the grey dwarf Ageratum. Of the other three beds—two circles and a lozenge—we would plant the circles as proposed with an edging of Pyrethrum, but we would have no Pyrethrum in the lozenge. Instead of dividing it, we would centre with scarlet, surround with white, and edge with blue. (*T. Marshall*).—We could improve on your planting only in this: As your centre clump is of yellow Calceolaria bordered with Iresine, we would not border 5 and 6 in the same line with Iresine, but surround Crystal Palace Gem with blue Lobelia. (*W. W. Longton*).—Your planting is on the balancing system, simple and very good. Your centre bed will be very fine but for the smaller size. Your 4, 2, and 3, 4, 5, 6, would also be better bordered, the 2 with a purple and the latter four beds with blue; 7 and 8, and 9, 10, as described; but two we would margin with Cerastium mixed with Lobelia, and two with variegated Alyssum mixed with Lobelia. Both give fine soft edgings. The other four beds in the square we would plant as proposed. In the other group, 15 and 16, and 17 and 18, will not suit as to heights, 15 and 16 being so much taller than Mrs. Pollock, &c. Better, if you centre two with Lady C. Grosvenor, to centre the other two with Stella, then work down with Bijou, Amaranthus, and Mrs. Pollock. We cannot say we like 21 and 22, Madame Vaucher bordered with Bijou; better border with scarlet, pink, or purple.

Pine Apple Stem Cuttings (*R. Houlday*).—It is a very old mode of propagating the Pine Apple. There are full directions for such propagation in Mills's book on Pine Apple culture.

Auriculas and Polyanthuses (*Tyro*).—We cannot recommend tradesmen. Write to any of the chief florists who advertise in our columns. If you send to our office five postage stamps with your address, and order "Florists' Flowers," it will be sent to you post free. It contains the cultural information you need.

Seedling Viola (*H. C.*).—Your Viola is of a pleasing shade of colour, and is of the same race as Viola cornuta Perfection. The flower sent is inferior to others of this type already in the trade. Habit, profusion, and persistency of bloom are the chief points. You should plant it out near others of the same class already sent out.

Vines Failing (*W. H. S.*).—Your gardener was quite right in attributing the failure of your Vines to want of sun on the house. Last season was unfavourable for ripening wood; you may succeed better in a hot dry season. If you cannot remove the Beech tree, you ought to remove some of the branches that overhaug the roof.

Peach Trees and Vines in the Same House (*No Gardener*).—Probably the leaves are turning yellow and falling off from want of water. Examine the soil a foot or more below the surface. Syringe the trees every day. If your Vines are newly planted and intended to be permanent, do not fruit them. Vines which have been established one season may carry two bunches to each rod. Pinch the side shoots at two leaves beyond the bunch. Keep up a supply of moisture in the atmosphere of the house as you propose.

Leaf of Apple Tree Blotched—Peach Tree Gummed—Vinery Treatment (*Amateur*).—The leaf sent is burned by the sun. You should watch its effect on the leaves, and daub the spot over with white paint. If the cause of gumming is to be traced to the roots, the tree will gum again; replanting in suitable compost will be the only remedy for this. If the shoot has been injured by tying too tightly, remove the cause and the shoot will right itself. It would be too great a check to the tree to remove all the portion above the gummed parts at once; remove it a little at a time. The temperature of a vinery which contains principally Black Hamburgh Grapes should be from 65° to 70° at the time the fruit is setting. When the Grapes are set the night temperature need not be above 65°, and a moist atmosphere should be maintained. When the Grapes show signs of colouring, a small chink should be left for air all night. If the weather is hot and dry the paths and surface of the borders should be gently sprinkled twice a-day, which will be sufficient moisture. In damp weather omit the sprinkling altogether. The temperature by day from sun heat should be from 10° to 15° above the night temperature. Muscat Grapes require 5° more heat than the above.

Wireworms in New Garden Ground (*Walsall*).—It is very difficult to drive wireworms from newly-broken-up pasture ground. We have found dressing with lime and soot useful, also guano and salt, which are all good fertilisers, and we advise their application, but they will not free the ground of wireworm. Gas lime is the best thing we have tried; applied at the rate of ten bushels per acre it drives the greater part of them away, but it should be put on some weeks before the ground is required for cropping. Spread it evenly over the surface, allow it to remain ten days or a fortnight, and then fork it in. Ammoniacal liquor diluted with six times its bulk of water, applied to the ground with a watering-pot at the rate of three gallons to 6 square yards before sowing or planting, acts as a manure as well as a preventive of the ravages of wireworm and other grubs. We should plant the Cabbage tribe, Celery, Peas, and Beans, and plant largely with Lettuce, which forms a good trap. Take up all the Lettuces which the wireworms attack; they will be known by the plants flagging under the sun. Pull them up, and you will find the wireworms at the root-stem, or in the soil near it. We have found as many as a dozen on a single Lettuce root. Plant as baits, between the rows of other crops, Potatoes and Carrots, the Potatoes whole but with the eyes taken out, and the Carrots cut into pieces 1½ or 2 inches long. Place them in the ground about 2 inches deep, cover them with soil, and put in a stick to indicate the position of each. You may thus entrap many wireworms; examine the baits every second or third day, and after destroying the wireworms search should also be made in the ground, then replace the baits and cover them with soil.

Insects (*Reader*).—"Lice," "aphides," "gnats," all from the same source! Send us specimens.

Names of Plants (*Arthenice*).—It certainly is not a seedling Arbor-Vitæ, but one of the wild Mustard tribe, but we cannot say which species from merely seeing the leaves. (*T. S. H.*).—Pyrus pinnatifida, or Pinnatifid-leaved Mountain Ash. (*B. D. B.*).—1, Kerria japonica; 2, Pernettya mucronata; 3, Cytisus multiflorus; 4, Cytisus purpureus; 5, Phalaris arundinacea or Gardener's Garters. (*M. V.*).—The fungus found near the roots of old trees is Phallus fœtidus in a young state. (*P. S.*).—We cannot name plants from leaves only. We need flowers as well. (*Strickland*).—1, Only leaves; 3, Potentilla argentea, Silvery Cinquefoil; 3, We think Echium vulgare, Viper's Bugloss, specimen imperfect; 3, 4, Kerria japonica. (*L. B. S. C.*).—1, Pteris cretica albo-lineata; 2, Polypodium (Phymatodes) pustulatum; 3, Asplenium bulbiferum; 4, Pteris serrulata; 5, Pteris serrulata var. cristata; 6, Fabiana imbricata; 7, Polypodium cambricum; 8, Nephrolepis cordifolia; 9, Lihouia floribunda. (*F. P. G.*).—Acer japonicum, *Thunb.* (*Subscriber, Cornwall*).—1, Salvia verbenacea; 2, Cardamine pratensis; 3, Lychnis dinrna. (*E. L. J.*).—1, Alsophila leucolepis (?); 2, Anemia Phillitidis; 3, Nephrodium capense; 4, Nephrodium (?); 5, 8, 10, 11, Nephrodium patens; 6, 12, Asplenium (Diplazium) dubium.

POULTRY, BEE, AND PIGEON CHRONICLE.

WHICH IS THE BEST BREED?—No. 1.

I receive so many inquiries as to which is the best breed of fowls to keep, and I see so many inquiries of the same kind in "our Journal," that I have thought a few remarks on this very practical subject may not come amiss to many readers. I call it a very practical subject, because I have known cases where the few fowls kept involved a loss, entirely owing to a bad choice in this particular, and where a more judicious selection put an entirely new face on affairs.

Any man who affirms that some one particular breed is the best, not only for himself, but for everybody else, is simply carried away by enthusiasm for his own pet hobby. It may be the best for him, and at the same time the very worst for the friend to whom he recommends it. It is not for nothing that fowls have been bred, differing not only in every point of appearance, but even in habits and instincts. These peculiarities fit each fowl for some particular set of circumstances, and are in themselves an evidence of the superiority of pure breeds over any ordinary mongrels which can be procured. To these latter there is always one objection; they are generally hardy, and with proper judgment they may often be selected so as to prove really good layers, but they can never be depended upon not to sit, and this makes them unsuitable for the large number of cases where only one small yard or run can be given to the fowls, and where chickens cannot, therefore, be reared to any advantage. Their "broodiness" in this case gives infinite trouble, which, by the choice of a non-sitting breed, would be entirely avoided. Even where one or two broods of chickens can be reared the objection still holds good, as it is impossible to set all the hens, and it is always easy, if a non-sitting breed be kept, to buy or hire one or two hens for sitting each season. When these beat off their chickens and begin to lay they can be turned down with the others; and as soon as their batch of eggs is finished, and they show any inclination to sit again, they may be killed for table.

The objection often made to the price of pure breeds is not nearly so great as many suppose, though I certainly cannot understand what Mr. Kinnard B. Edwards means when he contrasts the prices of really "first-class" birds and eggs now with those a "year or so" ago. First-class birds will always be rare, and therefore costly; and if he means to say that birds of such quality, from a show point of view, or eggs from such, can now be bought cheap, all I can say is he knows little about the matter, for there never was a time when birds good enough to win would realise better prices than now, except in the brief months of the poultry mania. If, on the other hand, he means what the great breeders call their "wasters"—that is, birds which have all the useful qualities of the breed, but from faults of feather are disabled from being shown, then I would say that I have never known the time when such could not be obtained at the price he mentions of 7*s.* 6*d.* to 10*s.* each, and most breeders are glad to clear out their condemned chickens at that figure. This brings me to the point I was upon, that good stock at 10*s.* per bird will nearly always pay better than mongrels at 2*s.* 6*d.* I would advise always that a cock be provided as well as hens; for while he is not needed where eggs only are required, I have always found the family seem more contented, and I think, as a rule, thrive better. In that case, also, the first expense of the stock need be the only one, for a brood or two may either be hatched, or a sitting or two can be given to a neighbour, on condition of so many chickens being allowed from the produce. In this way the stock may be kept up, and the needful change of blood kept up either by exchange or the occasional purchase of a strange bird. I do not advise by any means breeding to exhibition standards, except there be the strong inclination for it which is likely to command success, and this is not a case I am now considering. Hence the introduction of a fresh cock need not entail the care and anxiety which, in the case of a fancier, it always does, and *must*, if he would preserve his strain from ruin. Provided the new bird be of fairly pure breed, not related, and of good health and size, it will be sufficient; and in this way, with no trouble and very little expense, all the economical advantages of the best breeds may be secured and maintained for years.

To one point, however, care should be devoted. In every lot of hens some will be better layers than others. Let us suppose we start with six Houdans—a cock and five hens. Probably out of this five two may lay thirty eggs per annum more than either of the others; their eggs should be noticed, and only these eggs set. By following this plan for a very few years a very great increase in egg-production may be obtained. My attention was drawn to this subject by a friend having a Brahma pullet,

which laid nearly three hundred eggs in one twelvemonth, though valueless as a fancy bird, and the quality descended to several of her progeny; and I have since found other instances which prove conclusively that a vast improvement might easily be effected in nearly all our breeds were that careful selection of brood stock made for this purpose which the fancier bestows on other objects. It is to be regretted more is not done in this way, and having more room than I had, I hope myself to make some experiment in this direction shortly. I will only say now that I am perfectly certain the number of two hundred eggs per annum might be attained in a few years with perfect ease were the object systematically sought; and I trust these few remarks may arouse a general attention to it amongst those who keep poultry for eggs only, and who can easily do all that is necessary without any knowledge whatever of fancy points, or any attempt to breed exhibition birds.

The consideration of the breeds suitable for special circumstances I will endeavour to enter upon in my next paper.—L. Wright.

CHICKENS SURVIVING IN CHILLED EGGS.

I should like to mention the following facts for the encouragement, under similar circumstances, of my fellow fanciers. I have a number of hens sitting on Brahma eggs, and by an oversight, two days ago, they were not seen safely back to their respective nests after being taken off to feed. The consequence was that two hens went into one nest; this was not discovered for about five hours, and by this time the eggs, twelve in number, and nearly all chipped, were perfectly cold, and not a sound of a chick to be heard in them. I at once put them in a bowl of warm water, and in a short time heard the chirping of the chicks. When the eggs were thoroughly warm I replaced them under the hen; the following morning I had the satisfaction of finding eleven very fine chicks hatched, and they now appear as strong as any I have.—W. I. I.

HOME PRODUCTION OF EGGS AND POULTRY.

(*Continued from page* 354.)

I will now direct my remarks more particularly to the several newly introduced breeds of foreign fowls, and endeavour to point out the particular advantages these several breeds of fowls possess in a pecuniary or commercial point of view. I will commence with the Brahma, as being probably the most generally useful and important of the comparatively new introductions. This large Asiatic fowl surpasses all others in size and strength of constitution; and from its suitability to our variable climate, and from its many good qualities, it appears to have made greater way and increased in favour more rapidly than any other breed. The advantages this breed possesses pre-eminently over all other birds are its extreme kindness, docility, great size, and being a good layer, especially through the winter months, when eggs are most dear and valuable. In character the Brahma is somewhat similar to the Cochin, only more lively in its carriage and more inclined to roam in search of food. It also carries more breast meat, is less coarse in the bone, and has a better-coloured skin. As a table bird it will not compare with the Dorking, but the Brahma will thrive and do well where the Dorking will pine and die. The Brahma will cross freely with almost any breed, and it is, perhaps, for the purpose of crossing that the Brahma will be found more valuable. The celebrated Surrey chicken is highly esteemed in the London market, and is produced from a cross with the Dorking cock and Brahma hen. The more common cross adopted, however, throughout the country is the Brahma cock with Dorking or barndoor hens. The importance or advantage gained by this cross is imparting the great size and strength of constitution of the Brahma into the Dorking, without much deteriorating the value the Dorking pre-eminently possesses as a table bird. The Brahma is, as I said before, a good winter layer, and equal to the Cochin as a sitter and good mother to rear strong and hardy chickens, and when crossed with the Dorking, produces admirable egg-layers. It is not uncommon for Brahma cocks to attain the weight of 12 lbs. and 14 lbs., and hens 10 lbs. to 12 lbs. each bird. This is about the weight of two couples of common barndoor fowl.

The Houdan is the celebrated French fowl—the Dorking of France—more highly prized in that country than any other breed, perhaps not excepting the Crève-Cœur, and since its introduction here it is equally highly thought of, and promises to supersede most other breeds. The advantages this breed possesses are its early maturity and great readiness to fatten, being particularly light in the bone and delicate in flesh; it is also a precocious layer of large white eggs throughout the year, never desiring to sit. It is no exaggeration to say that the Houdan will fatten upon the same food that will scarcely keep other fowls in ordinary condition. There is another valued French fowl fully equal to it in this respect—that is the Crève-Cœur, a magnificent jet black bird of very considerable size, and possibly the most precocious fowl known to fatten. These birds are now well established in this country—so much so, indeed, that it is easier to purchase thoroughly pure and good specimens for stock purposes here than it is in France.

Among the most celebrated of the English breeds come first the Dorking, followed by the Game and Hamburgh. The Dorking may, in every sense, be considered a purely English fowl. Its antiquity clearly dates back to the Roman period. For table purposes the Dorking appears to hold its own against all comers, and certainly from its size, amplitude of breast meat, delicacy of flesh, and early maturity, it is not easily surpassed. But as a layer, the Dorking is found very variable; some strains are said to be fair layers, but, as a rule, this breed cannot be depended upon for the production of eggs in any quantity, and only through the fine summer months. The disadvantages the Dorking possesses are the delicacy and difficulty in rearing the chickens, and the liability of the breed to disease, save in exceptionally warm and dry localities. To increase the strength and stamina of this breed, and make it more generally useful and suited to our climate, it is found necessary to cross it with some of the larger and stronger breeds, and the cross invariably produces a valuable and profitable bird.

We next come to the Game, the bird that is sure to be the cock of the walk wherever he may be thrown. The Game is to the other breeds what the racehorse is to the more common breed of horses. The value of the Game lies rather in its great courage, bold spirit, and great beauty, than possessing any super-excellent qualities in a commercial sense. The flesh of the Game is, however, superb; but there is comparatively little of it, the bird being anything but large or meaty. The hens are good layers of peculiarly finely-flavoured eggs, and I think there is no bird that is better able to cater for itself or will wander a greater distance in search of food.

We now come to that most beautiful and highly-prized breed, the Hamburghs—the Gold and Silver-spangled, and Gold and Silver-pencilled varieties. These beautiful birds have been established for centuries amongst us, and may be looked upon as an English fowl, although the first stock was probably brought here by a Dutch merchant trading with this country. Such precocious and determined egg-layers are these birds, that they have earned the well-merited name of every-day layers or everlasting layers. The eggs, although somewhat small in size, are rich in quality, and the shell white. Indeed, the size of egg laid by the Spangled variety is not very much smaller than the egg of the Cochin or Dorking, both of which lay a small egg in proportion to the size of the body, whereas the Hamburgh's egg is large in proportion to the size of the bird. It is not at all uncommon for Hamburghs to lay from 250 to 280 eggs in the year, and occasionally 300 are obtained from a single bird. Two hundred and forty would, I think, be a fair average yield from this breed. For table purposes they cannot be much considered, owing to their small size. They are, however, plump and well-flavoured, and make excellent roast chickens. They are small eaters and very busy caterers for themselves, and obtain a larger proportion of their necessary food by searching about for it. In this respect they, with the Game, are essentially a farmer's fowl.

The Black Spanish or the White-faced Spanish cannot now be considered other than a fancy fowl; the continued breeding in-and-in to obtain this peculiar face has deteriorated its value as a profitable bird. Instead of the hardy, useful, old-fashioned, red-faced bird that formerly existed, we have now a delicate fancy fowl, less hardy and smaller in size. The Spanish have ever been noted as good summer layers of a large white egg, and were it not for its black legs, would be highly esteemed for table purpose, from the whiteness and delicacy of its flesh.

I have touched upon the generally acknowledged advantages that the best and most approved breeds of home and foreign fowls possess, and I shall now direct your attention to the general treatment of fowls and the return that may be realised by them with proper management, showing the importance in a commercial sense that would result from an increased quantity being kept and the quality of our breed being improved. The first thing to be considered by those who keep fowls should be to obtain that breed most suited to the climate of the locality as well as the accommodation and convenience of the individual poultry-keeper. To the farmer who possesses an unlimited grass run, with farmstead well sheltered and soil dry, the Houdan or Brahma Dorking would be found the most generally useful and profitable breed to keep. As layers, considering the size of their eggs, they are not to be surpassed, and as table birds, heavy, large, and meaty, with readiness to fatten and quick growth to maturity, they will always command a ready market and the highest price. To the cottager who is obliged to confine his fowls within a narrow space the Brahma or Crève-Cœur will probably be found the most profitable and satisfactory, combining egg-producing power and flesh-forming propensity in the same bird, and less likely to suffer by confinement than any other bird, as they are bound to thrive in a space where Houdans, Dorkings, or Hamburghs would pine or die. For the production of eggs in winter these birds are not to be surpassed, and this is a necessary qualification for the profitable keeping of

fowls in a confined state, inasmuch as the increased price eggs obtain in the winter months will compensate for the increased cost of keeping fowls depending entirely upon hand-feeding.

(To be continued.)

EXIT END OF AN EGG.

I HAVE seen eggs chipped at the small end, but I have never known a chicken make its exit from that end. This season I had one such case, but the chicken failed to chip the shell sufficiently to admit of its escape, and so it died before I was aware of its position. On opening the shell I found that the chicken's body was in the natural position, but its head was unusually low down, and on that account it could not work round in the shell.

It is not unusual to find eggs chipped about the middle, out of seventy eggs hatched this year I had three such; the "bubble," in each was much below the shoulder of the egg, but not entirely on the side.

The natural position of the chicken in the shell is with its caudal extremity in the small end, its feet drawn up against the sides and front of its abdomen, the neck bent forwards and downwards, the left side of the head against the thorax, a little to the right of the central line, the right wing covering the right eye. All living things, oviparous as well as viviparous, come into the world head foremost. The large end of an egg comes first, and from that end the chicken makes its "exit."—O. P. H. Z.

P.S.—Since writing the above I examined the eggs that I have set—about fifty—and found one with the air-chamber near the small end. It was set on the 20th. I will examine it occasionally until it comes to maturity, and if of any interest to you, I will send you my notes of the case.

CRYSTAL PALACE CAT SHOW.

A CAT SHOW was held at the Crystal Palace, which opened yesterday, and will be continued to-day. The number of entries is not so great as at the last exhibition, but what has been a falling-off in number has been correspondingly an improvement in the quality of the animals exhibited. In future Mr. Wilson intends that these exhibitions shall take place in the autumn, when the entries will be much greater. Among the animals exhibited was a fine specimen of the Royal Cats of Siam, which are only known to exist in the palace of the King; also a fine specimen of the rare Tortoisehell Tom Cat. The arrangements were admirable, and such as to enable the curious public, who look and linger at these interesting exhibitions, to see the whole in comfort. The Judges were Lady Dorothy Nevill, Mr. Harrison Weir, F.R.H.S., Mr. Jenner Weir, F.Z.S., and Dr. Hogg.

BIRMINGHAM SUMMER EXHIBITION OF POULTRY AND PIGEONS.—A schedule is just issued, and one more enticing to exhibitors could scarcely be conceived. The silver cups, of which there are already no less than forty-one advertised, will no doubt be even yet considerably augmented, being throughout the gifts of private individuals; and as the list of subscriptions is not yet complete, it is probable there will eventually be but few if any classes without their plate prizes. The number of classes is ninety, and their arrangement follows pretty closely that of the Birmingham December meetings. Among the special novelties of the Show, to be held simultaneously and adjacent to the Royal Horticultural Society's Exhibition, is a class open to any variety of Pheasants, which it is expected will be of great public interest; and besides this, the ladies of Moseley and King's Heath have contributed a handsome piece of plate for the best pair of fancy Ducks—that will, beyond doubt, insure a large entry of the most valuable specimens. The Show being entirely under the management of long-experienced amateurs, the owners of choice poultry may safely depend on the most careful and constant attention—in fact, as advertised in the schedule, "Members of the Committee will be in attendance both day and night," though another rule will be rigidly enforced, "that no exhibitor or any member of the Committee will be allowed in the Show during the judging." The entries close on Saturday, June the 8th next. The Show itself will be held under spacious tents, on June 25th and three following days, and the Judges appointed are, for Poultry, Messrs. Hewitt and Teebay; for Pigeons generally, Messrs. Esquilant and Child; and for Flying and Muff-legged Tumblers, Mr. Beardsmore, of Birmingham. Under so careful an arrangement a great success appears certain.

HAMPSHIRE ORNITHOLOGICAL ASSOCIATION.—After acting as Honorary Secretary for ten years Mr. Philip Warren has resigned. A very handsome silver epergne and other articles have been presented to him at a public dinner, and he explained that the cause of his resignation is the claim upon his time of his public official duties. The subscribers to the testimonial included not only his friends and members of the Association, but also the exhibitors at its exhibitions. That it has thriven during his secretaryship is testified by the following statement: At their first Show they had 150 exhibitors; second, 213; third, 270; fourth, 380; fifth, 490; sixth, 510; seventh, 600; eighth, 650; ninth, 700; tenth, 900.

SILVER DRAGOONS' BARS.

THE question at issue on this subject is, Which is the proper colour for a Silver Dragoon bar—brown or black? Mr. Graham does not bring forward any evidence whatever why the brown bar should not be upheld, much less why the black should take its place.

Mr. Graham says my precedent is "no argument, for no black-barred were exhibited, and therefore they (the judges) were obliged to give prizes to the best of their ability; and supposing judges make an error one year, is that any reason why they should always do so?" I say the judges were right then, and are right now, in giving brown-barred birds the prize, for there are no black-barred birds now any more than there were then; and to prove this assertion I quote Mr. Graham's own letter of December 21st, 1871, page 498, in which he says, in reply to your correspondent (who, I may here add, has been one of the best Dragoon breeders in existence, and to whose opinion I would sooner give way than to that of any man in the fancy), "Now I maintain that they cannot be too black, and I should only be too glad to meet with a pair having jet black bars." What does this mean? Does it not confirm what I have said in my former letter, that what Mr. Graham has written up as black is not black—far from it?

I should be glad if Mr. Graham would read my last letter again, evidently he misunderstands me. I then asked, How is it so successful a fancier as Mr. Graham has never (as far as my personal experience has gone, and I have visited many shows) exhibited other than brown-barred birds until he purchased the second-prize pair at the Palace Show, Mr. Graham himself exhibiting brown-barred birds there? Mr. Graham says this is contrary to the truth, for the only pair of Silvers at the Crystal Palace which I exhibited were black bars. Will Mr. Graham admit there were only two pairs of Silvers in the class (Blue or Silver), and that Mr. Gibson obtained the second prize? I again state the others were Mr. Graham's, having brown bars. These birds, too, I saw at a show a few weeks before, and looking over the class at the Palace before opening my catalogue, I remarked to a friend, "Why, Graham has done nothing with his Silvers!"

Mr. Graham also says Mr. Allsop, in his controversy with Mr. Percivall, in your Journal a few years ago, advocated a white rump for a Dragoon. Now I can assure Mr. Graham he is as much in error on this subject as he is in stating black is the proper colour for a Silver Dragoon bar. It was Mr. Ludlow, and not myself who took part in that controversy; and if I remember aright on this subject (I have not the correspondence by me to refer to), Mr. Ludlow, also, never did advocate the white rump for a Blue Dragoon. Perhaps Mr. Ludlow will put us right in this matter; and as Mr. Graham has to call on his friend Mr. Gibson to come to the front and support the black bars, I respectfully ask Mr. Ludlow to give his experience in breeding Silvers, and to say which is the proper colour for their bar.

Mr. Brent, in his book on Pigeons, says that Silver Owls, Baldheads, &c., should have black bars. Mr. Graham asks, If correct in other breeds why not so in Dragoons? I may as well ask, As the Silver Dun Antwerp has red bars, why should not the Silver Dragoon have red bars? I think one argument is as good as the other—that is, worth nothing at all. In the first place may I ask Mr. Graham, Is the "Silver" colour of the Owl, Baldheads, or Turbit of the same colour as the "Silver" of the Dragoon?—unquestionably not. Do not the white flights of the Baldhead or Turbit enhance the colour of their bar by the contrast there is in black and white? Is it not different altogether with the Silver Dragoon? Do not their flights have to match with their body? Should not the neck feathers of the bird correspond with the colour of their bar? In brown-barred birds it does—a point this which Mr. Graham seems entirely to ignore—as in such birds as the second-prize Palace and Birmingham birds were, whilst their bars were of a bad colour, or, to use a corrected term, "kite-coloured bars," their neck feathers were decidedly of a blue cast. This I consider a fatal objection to a show bird.

Mr. Graham also says that Dragoon classes in shows are of comparatively recent date, and we must therefore look to the old flying fanciers, who distinctly state that Silver Dragoons should have black bars, and that Mr. Moore, a flying man of twenty-three years' standing, says, "Dun bars were always discarded, and considered wastrels and only fit for the pie." I would remind Mr. Graham that there is an exception to every rule. Twelve years ago I knew of a brown-barred Silver Dragoon hen that fled regularly from Alton Towers to Walsall, a distance of nearly fifty miles, under the hour, and lately of a Silver Dun

Antwerp hen that has flown scores of times from London Bridge to Birmingham, a distance of nearly 120 miles, in two hours and ten minutes, and this bird, too, obtained the first prize at Glasgow Show the first year a class was made there for Antwerps, which I believe is four years ago.

It is a well-known fact that all Pigeon-flying men consider soft-coloured birds faint-hearted, and not able to be trained to fly any distance; so, as the Silvers with the dun bars are wastrels and only fit for a pie, how is it the same remark does not apply to the washed-out blue with bad-coloured bars? May I ask, also, what has the Pigeon-flying man to do with the exhibitor? Are the decisions of our judges, who are gentlemen of well-known ability, to be discarded because a Pigeon-flying man says the reverse? Is it not a fact that the enthusiastic Pigeon-flyer cares not what colours he crosses together, if he can improve his birds in speed for a short distance of twenty miles, or add stamina and endurance to his champion of one hundred miles? Does the flying Dragoon man object to have in his stud a black pied, a sooty blue with bars hardly discernible, blue-splashed birds, blue white-flighted, or white-rumped birds, or anything of the sort, so long as he can fly the distance in the shortest time? Certainly not. Are not such birds invaluable to a Pigeon-flyer, and at the same time would not an exhibitor consider them wastrels and only fit for the pie?—H. Allsop.

[This and similar controversies serve to rouse attention to the subjects in dispute, but must not be prolonged. The decision can only be arrived at by the votes of a committee of competent judges.—Eds.]

EVENLY-MARKED CANARIES AND MULES.

I am again reluctantly compelled to reply to my worthy friend Mr. Hawman's remarks on the above subject. I still fail to discover any valid reason, assigned by him, why the ellipticcapped bird with even-marked wings should not be allowed to compete in the Evenly-marked classes; and this is really the point in dispute. Mr. Hawman furnishes us with an extract from the rules of the Bacup Ornithological Society referring to marked Belgians, but this is not to the point. What are wanted are the rules relating to the Unevenly-marked classes of Norwich, Cinnamon-variegated, Yorkshire, Belgians, and Mules. I cannot but fancy that the rules quoted are of a very ancient type, inasmuch as I notice that some of the essential and best features of truly good Belgian Canaries are entirely overlooked or omitted. No doubt the head, neck, and shoulders of a Belgian Canary, as also a well-filled back, are vital and important points, but without size, good legs, a long, close, and well-curved tail, a good chest, small waist, freedom in movement, good erect carriage, and general and graceful contour, what do they all amount to? How many birds with nice, flat, snake-looking heads, and long, fine, well-formed necks, with good shoulders and well-filled backs, do you find with short stunted legs that cannot get off their hocks, and with short, broad, stiff tails, sticking out like a rocking horse, and quite as wooden in their general appearance? This convinces me that the rules are either old, or the Society is certainly in the sere and yellow leaf, and far behind the present enlightened period in the science of ornithology, and hence unworthy of being cited as an authority in any form. If Mr. Hawman refers to my former article he will find that I did not say that the cap-marked birds emanated from the societies mentioned by him. What I did say was, that I presumed the rules excluding the cap-marked birds from the Evenly-marked classes had originated from them; and in this, at any rate so far as Bacup is concerned, I was quite right. I should like to be informed upon what grounds Huddersfield, Halifax, Bradford, &c., are to be regarded as the "principal places having Canary societies." If this is so, why do they not, like Sunderland, Newcastle-on-Tyne, Durham, Darlington, Middlesborough, Stockton, York, Berwick-on-Tweed, and many other places, have an annual "All Englaud" show?

Mr. Hawman told us in his last that several judges had at different shows awarded prizes to the capped-marked birds. The bird Mr. Beloe claimed at Middlesborough two years ago, and which obtained the second prize, was exhibited by a well known and successful competitor residing at Derby; and I ask, Where is there a better or more successful lot of breeders and exhibitors of Norwich Canaries than there is at Derby? Therefore it is evident that at Derby the cap and wing-marked birds are regarded as Evenly-marked birds, another great consideration in favour of my argument.—Robert C. Wallace, *Berwick-on-Tweed*.

[This controversy had better cease.—Eds.]

STRONG SWARMS—IMPORTANCE OF SHADE.

The thing in bee-keeping is strong swarms. This is so much the case that a strong swarm, left to itself, will do well in the woods—if quite strong, remarkably well, as everyone must know, immense amounts of honey being thus realised.

A strong swarm will defend itself both against other bees and against moths; it will throw out better swarms, is more reliable for swarms, sustains itself better, and, most of all, will give a large surplus of honey. Such a swarm will protect itself during the winter, will require no feeding, no removal, very little care of any kind—none in the woods—and it is only such swarms that will pay, as bee-keeping goes. They will pay better if the improvements are added, but without them they will pay.

We have this beautifully demonstrated here, in a rather noted section for bees, where the common old-fashioned hive has made little fortunes for their owners. Their secret is, strong swarms; this, at any rate, or no swarms. Hence little feeding, little trouble to keep, safety—you are sure of your investment; otherwise, you may be sure the other way.

But some bees, even strong swarms, will not do well.

True, we have known such, and the strong ones held out best. We know one cause of such decline to be bad location, not with respect to territory, but the effect of the climate, the direct rays of the sun striking the hive for the whole day and the entire season; also pelted mercilessly by all the storms. But the sun is the worst. Bees seek a relief from this by going to the woods. Here is, not dense shade or all sunshine, but a tempering of both. The colony does not seek the lower part of the tree, dark with shade and moisture, but ascends to the top, where light and shade alternate, and the winds fan the place of abode. This partial shade should be the aim of the bee-keeper in selecting or making a location.

The best success here (Starkville, N.Y.), is in a small grove, occupying the yard of the house on the north side, buildings adjoining on the east and west, thus lessening the intense heat of the sun, and yet affording sufficient warmth. No hees seem so industrious, and do so uniformly well in this locality, as these. Shade, strong swarms, and intelligent care, are the thing here.

There are others similar. We think there can be no mistake about the shade, and we are surprised that it is not more insisted upon. The thing has been spoken of, but not with sufficient emphasis. That shade is an aid, generally, is clear; that it is of the utmost importance, indispensable in a hot season, is equally clear. This we have seen beautifully illustrated. In a wet cloudy season there is little difference. It needs but a few trees. A rather close orchard will do; though Maples and some other ornamental trees, with a few fruit trees, somewhat scattered, form the protection of the place mentioned.—F. G.—(*Boston Cultivator.*)

OUR LETTER BOX.

Illustrated Poultry Book (*R. E. H.*).—It is publishing in monthly parts, price 1s. Any bookseller can obtain it for you.

Spanish Cock's Comb Black and Falling over (*Subscriber*).—It will be safe to exhibit the bird, and the colour will probably return to the comb when we have some dry weather. It is such an important feature in a Spanish cock, that we advise you to leave it alone. Give two more of Baily's pills at intervals of twenty-four hours. They should put him to rights.

Flesh as Poultry Food (*P. M. H.*).—It is generally supposed that when fowls have their liberty they find enough of animal life in the shape of slugs, worms, snails, and other crawling things that have the ill-fortune to come under their notice. All birds are carnivorous. Even Doves will eat flesh, and acquire a preference for it over their natural food. It is said that all men become cannibals after they have been fed for a time on human flesh, that the love of it becomes a furor. The same may be said of fowls fed on flesh. They soon acquire a distaste for other food, and are always on the look-out for flesh. Finding no other, they eat each other. We have of late constant complaints that fowls eat each other's feathers. We also know that they feed greedily on any naked bleeding spot there may be on one of their fellows, and that the sufferers stand quietly to be devoured. We attribute much of this to meat-feeding; it induces an unhealthy state of body, a meretricious craving instead of a wholesome appetite, and a longing for tasty garbage rather than good, wholesome, plain food. It induces excessive fat, it causes the appearance of health, and it stimulates laying, but it also wears out the fowl, and the bird that should have lasted for years crowds the work of a lifetime into a few months, and, though it may live, is afterwards a worthless thing.

Crossing Hamburghs with French (*Idem*).—We have never tried the cross between the fowls you mention. We should not be disposed to do so, because we can see no gain from it. The Hamburghs lay the largest number of eggs, the Houdan and Crève-Cœur the largest size; but we fear if you try to get the number of the first and the size of the last by crossing the two breeds, you will be disappointed.

Breeding from Chickens—Feeding (*W. L.*).—Those learned in poultry are not friendly to breeding from chickens of both sexes. They are quite fit for the process at nine months of age, but as a rule we put the young cocks with hens, and with the pullets we put the old cocks. The small eggs are what is called pullets' eggs, and are sometimes as small as you describe, but rather less than Pigeons'. They are not indicative of condition, but rather argue disordered secretions. We do not admire your dietary. Pollard is poor food. Substitute barleymeal or ground oats for it, and give the scraps as well. You may give whole maize in the middle of the day, and you should feed as long as they run after the food, not afterwards.

Rouen *versus* Aylesbury Ducks (*Doris*).—Aylesbury Ducks are the earliest layers, but they do not sit. They require wet nurses. Formerly they were heavier than the Rouens, but of late years they have yielded to the Rouens. The Aylesbury people were fickle, and although the Ducks brought them £30,000 for many years, they all, even Mr. Fowler, went in for Rouens If it be true—"*Qu'on revient toujours à ses premiers amours*," some day the Aylesburies will look up again. As a rule, the drakes are not vicious.

Various (*Dalkey*).—We expect the bird has corns from walking on the gravel. It may perhaps be from age. Old Ducks are subject to the visitation.

It is considered bad to keep Ducks and fowls together. It would be better to enclose a small space for the Ducks. Their "stabble" is not good for fowls. The oats are good feeding for Ducks, but not for fowls. These latter do not like them. We prefer whole Indian corn to the meal for poultry, and it is more profitable, as there is no waste, and the small birds do not eat it. The tank is very well for the Ducks, but unless the water runs through it continually it is bad for fowls. Ducks make it very dirty, and often offensive. Fowls prefer dirty to clean water, but it is bad for them. Any of the fountains invented by different people, or a flat earthenware pan, will do for water, and will keep it clean. We advise you to give clean water every day, to feed on barleymeal or ground oats every morning and evening, to give for the mid-day feed whole maize and the kitchen scraps. As they have no grass, let some large sods of grass be cut with plenty of earth, and given daily. We should be half disposed to think the half-bred hen lays and eats the eggs. If she goes to the nest and then cackles we believe she lays. Watch her closely. We shall be happy to receive your lecture and to give it an honourable position.

Brahma Cock's Comb (*G. W. B.*).—The comb should be threefold, made as it were of three, one larger and higher than the others. The two smaller should seem as though they were pressed into the sides of the larger, retaining shape and serrations, but forming part of the higher and larger one.

Hens Egg-bound (*W.M. for R. P. F.*).—If the appearances you mention are common, there is something wrong in your feeding. If in only one or two cases, they are caused by an obstruction in the egg-passage, but the shells being very fragile till they harden by exposure to the atmosphere, they break in transit. They cannot be laid after that, and the hen must die. To two previous queries we have stated how fowls ought to be fed. Avoid all condiments and unnatural appliances; feed as birds feed in a state of nature. You will never find a Pheasant or Partridge dead from being egg-bound.

Eggs by Rail (*W. B.*).—Your case we think exceptional. Eggs usually are conveyed safely. If blame attached, the manager of the line should be informed of the names or stations of the delinquents.

Brahma Eggs (*Galway Amateur*).—No one would supply eggs on the terms you mention. Eggs usually travel well, and if they are exceptionally injured by rough usage on their passage the purchaser must endure the loss. The offer of another sitting at half-price was liberal.

Pigeon Race.—If "H. J. R. L," or any other subscriber, encloses a postage stamp with his address we will send the rules, &c., of the race.

Pigeon Diseased (*Antwerp*).—From what you say we think your bird has caught cold. Try a warmer place, and a little hempseed with its food.

Training Tumblers to Fly (*Cæsar*).—It is somewhat difficult to train Tumblers to fly, the difficulty being to get them up. This is increased if there are high buildings near, on which they can sit and defy you. We have found the following plan answer best. 1st, Do not let your birds out until you want them to perform. If they are let out early, say six o'clock in summer, by a servant, they take a fly round, and do not care to move again. 2nd, Choose a fine clear morning, put the birds which you intend to fly in one place, say one side of the division in your loft, not letting the sitting birds mix with them. 3rd, Do not feed them; and at, say, nine o'clock, open the trap, and frighten them up with a carriage-whip, which, being long and making a noise when cracked in the air, we have found answer well. If possible, do not let one idler rest on a building. In a few mornings it is wonderful how they learn to mount. When they come in they will rush to their food and enjoy their breakfast. We are sure that overfeeding is bad. Keep the fliers pretty sharp and anxious to pick up every stray grain. Feeding before flying is a most foolish plan.

If you want your birds to fly,
Tumble well, and mount up high,
Don't give them a single grain
Till they're in the loft again.

There is a rhyming rule for you to remember.

Parsley for Rabbits (*Old Charlton*).—We should only give it in small quantities daily.

Jonque, Buff, and Mealy Defined (*M. G.*).—A Jonque Canary is what an uninitiated person would call a Yellow one, and a Buff or Mealy bird is what would ordinarily be called a White one. But there are many shades of colour between the pale lemon-yellow of a common Canary, and the rich orange of a Jonque, and in the same way there are as many shades of colour between the almost colourless White bird and the deep Buff. Yellow birds are bright; Buff are dull; Yellow birds are of one uniform brilliant colour; Buff are, as it were, dusted over with meal, hence the synonyme Mealy. The terms Yellow and Buff, Jonque and Mealy, are used with a general application also (irrespective of the idea of Yellow and Buff considered as colours), dividing all varieties of Canaries into two classes. For example: A Green Canary if bright is said to be a yellow green, and if of a dull opaque sort of colour, is said to be a buff green. A bright Cinnamon is called a Yellow Cinnamon, and a dull one a Buff Cinnamon, and so on through every variety. A clear bird is one which shows no dark marks—that is, has no dark feathers, and which also has white under flue, the underneath portion of the feathers, which in some apparently clear birds is quite black. There is no probability of a Canary Show at the Crystal Palace in the summer. The birds are not in condition for exhibition, and are very busily engaged in rearing little olive plants for future shows.—W. A. Blakston.

Canary Wheezing and Sneezing (*Geo. Wm. Hibbert*).—There is nothing inconsistent in being a Canary fancier as well as a poultry fancier. The one ranks as high as the other, and I still live in hope of seeing the Canary have a line to himself on the title-page of the Journal. Our Belgians hold their heads as high as any Brahma, and show as much blue blood as any Game. Either fancy is a source of amusement, with a strong dash of £ *s. d.* in it, rather than a disinterested study, having for its object the production of pretty songsters on the one hand, or eggs and flesh on the other. Neither fancy has for its ultimate aim any idea of benefiting mankind. Indeed, the Canary has but a limited sphere of action, and could at the best do but very little or nothing. Poultry might do a great deal, but do not. The object of poultry-breeding is much the same as Canary-breeding—feather. There is no inconsistency in the two going hand-in-hand. Your bird has evidently a severe cold. Feed him on bread and milk, and keep him very warm. He will most probably soon come round again.—W. A. Blakston.

Canary with One Mandible (*F. W. Smith*).—Why wish to keep such a deformity? As for its being able to feed itself after it is weaned, Nature makes wonderful provision for supplying deficiencies, and might suggest a mode by which a bird with only a lower mandible might be able to feed itself, but I should suggest that it would be merciful to kill it.—W. A. Blakston.

Birds Dying in an Aviary (*Subscriber*).—I wish I could prescribe a check for the mortality in his aviary, which if unchecked bids fair to decimate its population. It is always more or less difficult to keep in confinement birds naturally wild. The Canary, being to a great degree domesticated, and having been for generations bred in prison, is perhaps less susceptible to changes which affect other birds. Of our own native wild birds, few are kept in confinement in numbers to equal the Goldfinch or Linnet, and everyone who has had much to do with these birds knows on what a slender thread hang their lives. Fully 50 per cent. of fresh-caught birds die either in the catcher's, the dealer's, or the first purchaser's hands, and but a small per-centage live to moult in the house and become over-year birds, as they are called. Do as we will, and be as careful as we may, and as thoughtful as possible to supply food as nearly as possible like that procured in the wild state and to furnish conditions closely approximating to those in which the bird is found, our best endeavours are futile; and they first get a little "thick," then mope, then put the little head with all its sorrows and troubles under the wing, and go quietly away. The post-mortem shows nothing—affords no clue. True, the body is wasted, but that will come about in very few hours, and a plump breast soon becomes a mere wedge. Sudden changes in the weather, chills, trifles which would not affect them when flying about at liberty, soon give them their mittimus.—W. A. Blakston.

METEOROLOGICAL OBSERVATIONS,

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude 111 feet.

Date. 1872. May.	A.M. Barometer at 32° and Sea Level.	A.M. Hygrometer. Dry.	A.M. Hygrometer. Wet.	A.M. Direction of Wind.	A.M. Temp. of Soil at 1 ft.	In the Day. Shade Temperature. Max.	In the Day. Shade Temperature. Min	In the Day. Radiation Temperature. In sun.	In the Day. Radiation Temperature. On grass	Rain.
	Inches.	deg.	deg.		deg.	deg.	deg.	deg	deg.	In.
We. 8	29.409	49 3	47.1	S.	52.1	56.5	43.3	102.2	40 1	0.171
Th. 9	29.766	49 6	46.9	S.W.	51.4	57.5	42.9	110.0	40.0	0.265
Fri. 10	30.135	52.1	47.1	N.	50.9	58.2	41.2	112 1	39.2	—
Sat. 11	30.133	45.0	40.1	W.	50.4	51.9	34.6	103 2	29.0	0.025
Sun. 12	29.955	44 9	41.5	E.	49 8	57.8	35 3	102.2	32.8	0.081
Mo. 13	29.741	48 2	47.4	N.	50.2	50.8	41.9	59 1	41.1	0.735
Tu. 14	29.843	49.9	46.4	N.E.	49 8	56.0	46.2	100 8	45.0	—
Means	29.855	48 4	45.2		50.7	55.5	40.8	98.5	38.2	1.276

REMARKS.

8th.—Showery and cold; thunder between 3 and 4 P.M.
9th.—Cold and cloudy at 9 A.M., fine from 10 A.M. to 0.40. P.M., thunderstorm from 0.52 to 1.18 P.M., and again between 5 and 6 P.M. Occasional showers during the day.
10th.—Very fine morning, and fair, though sometimes cloudy throughout the day; starlight night.
11th.—Frost in morning, very cold and stormy all day. Snow at ten minutes before 1 P.M.; several heavy but short showers.
12th.—Cold and cloudy, but on the whole a fine day; rain at night.
13th.—Very wet day, overcast throughout, and almost continuous rain. Between 9 A.M. and 9 P.M. 0.63 inch fell, and another tenth of an inch after the latter hour.
14th.—Fair, but with a large amount of cloud, rendering the sunshine very intermittent. Fine evening but cool.

A wet week, considerably colder than the previous one, and about 3° below the average. Sharp frost on the morning of 11th. The 13th was also a most wintry day.—G. J. Symons.

COVENT GARDEN MARKET.—May 15.

A week's coarse unsettled weather has completely disorganised our market, some things becoming quite scarce and others not to be had at all, the supply of Asparagus and Broccoli especially falling off. The foreign trade, however, has not been so much interfered with. New round Potatoes 20*s.* to 30*s.* per cwt.; Kidney ditto 6*d.* to 1*s.* per lb.

FRUIT.

		s.	d.		s.	d.
Apples	½ sieve	3	0	to	6	0
Apricots	doz.	2	0		3	0
Cherries	per box	3	0		5	0
Chestnuts	bushel	10	0		20	0
Currants	½ sieve	0	0		0	0
Black	do.	0	0		0	0
Figs	doz.	12	0		15	0
Filberts	lb.	0	6		1	0
Cobs	lb.	0	6		1	0
Grapes, hothouse	lb.	7	0		12	0
Gooseberries	quart	1	0		1	6
Lemons	₩100	7	0		10	0

		s.	d.		s.	d.
Melons	each	6	0	to	15	0
Nectarines	doz.	15	0		30	0
Oranges	₩100	4	0		10	0
Peaches	doz.	18	0		40	0
Pears, kitchen	doz.	0	0		0	0
dessert	doz.	0	0		0	0
Pine Apples	lb.	6	0		12	0
Quinces	doz.	0	0		0	0
Raspberries	lb.	0	0		0	0
Strawberries	₩lb.	6	0		15	0
Walnuts	bushel	10	0		25	0
ditto	₩100	1	0		2	0

VEGETABLES.

		s.	d.		s.	d.
Artichokes	doz.	4	0	to	6	0
Asparagus	₩100.	6	0		12	0
Beans, Kidney	per 100	1	6		2	6
Broad	bushel	0	0		0	0
Beet, Red	doz.	1	0		3	0
Broccoli	bundle	0	9		1	6
Brussels Sprouts	½ sieve	0	0		0	0
Cabbage	doz.	1	0		1	6
Capsicums	₩100	0	0		0	0
Carrots	bunch	0	6		0	0
Cauliflower	doz.	4	0		10	0
Celery	bundle	1	6		2	0
Coleworts	doz. bunches	2	0		4	0
Cucumbers	each	0	6		1	6
pickling	doz.	0	0		0	0
Endive	doz.	2	0		0	0
Fennel	bunch	0	3		0	0
Garlic	lb.	0	8		0	0
Herbs	bunch	0	3		0	0
Horseradish	bundle	3	0		4	0

		s.	d.		s.	d.
Leeks	bunch	0	2	to	0	0
Lettuce	doz.	1	0		2	0
Mushrooms	pottle	1	0		2	0
Mustard & Cress	punnet	0	2		0	0
Onions	bushel	2	0		4	0
pickling	quart	0	6		0	6
Parsley	per doz. bunches	3	0		4	0
Parsnips	doz.	0	9		1	0
Peas	quart	3	0		5	0
Potatoes	bushel	4	0		5	6
Kidney	do.	3	0		5	0
Radishes	doz. bunches	0	6		1	0
Rhubarb	bundle	0	3		1	6
Savoys	doz.	0	0		0	0
Sea-kale	basket	0	0		0	0
Shallots	lb.	0	4		0	0
Spinach	bushel	3	0		4	0
Tomatoes	doz.	3	0		6	0
Turnips	bunch	0	3		0	9
Vegetable Marrows	doz.	0	0		0	0

WEEKLY CALENDAR.

Day of Month	Day of Week	MAY 23—29, 1872.	Average Temperature near London.			Rain in 15 years.	Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock after Sun.	Day of Year.
			Day.	Night.	Mean								
23	Th	Royal Botanic Society's Show closes.	67.3	43.6	55.5	15	59 af 3	55 af 7	1 af 9	13 af 4	16	3 30	144
24	F	Queen Victoria Born, 1819. Anniversary	67.4	43.0	55.2	12	58 3	57 7	21 10	50 4	17	3 24	145
25	S	[Meeting of Linnean Society, 3 P.M.	65 4	42.9	54.2	16	57 3	58 7	27 11	43 5	18	3 19	146
26	Sun	Trinity Sunday.	67.4	42.8	55.1	19	56 3	59 7	morn.	49 6	19	3 13	147
27	M	Anniversary Meeting of Royal Geographical	66.5	44.7	55.6	22	55 3	0 8	16 0	9 8	20	3 6	148
28	Tu	[Society.	68.1	44.4	56.2	15	55 3	1 8	53 0	34 9	21	2 59	149
29	W	Meeting of Society of Arts, 8 P.M.	67.5	44.1	55.8	15	54 3	2 8	19 1	56 10	☾	2 51	150

From observations taken near London during forty-three years, the average day temperature of the week is 67.1°; and its night temperature 43.6°. The greatest heat was 91°, on the 28th, 1847; and the lowest cold 25°, on the 23rd and 24th, 1867. The greatest fall of rain was 0.97 inch.

GRAPE VINE CULTURE.

I AM tempted to write a few brief notes on this subject, because at this season the Grape Vine requires the greatest amount of attention.

In the latest houses the flowers are expanding, and at this time unremitting attention is necessary in order that these may set well. Free-setting varieties, like the Black Hamburgh, should have the bunches gently shaken once a-day; in the forenoon is the best time. Such sorts as the Royal Vineyard require artificial setting; a tiny globule gathers on the parts of fructification, this is removed by drawing the bunch gently through the hand. In a house of mixed sorts setting will be facilitated by a uniform night temperature of 70° being maintained. The Black Hamburgh will set freely in a temperature of 65°. If there are evaporating troughs on the pipes they ought not to be used while the Vines are in flower. At the same time a very dry atmosphere is not desirable; a sufficient amount of moisture can be obtained by sprinkling the paths and the surface of the borders twice a-day. Cold, cutting, east winds are very prevalent at this time of year, accompanied by bright sunshine; an injudicious admission of this cold air is a frequent cause of rust on the berries. Air should always be admitted with much caution at such times.

With an increased night temperature and the drier atmosphere our inveterate enemy the red spider will, doubtless, put in an appearance, in which case means must be at once used to effectually accomplish its destruction.

There are some gardeners who syringe their Grape Vines once or twice a-day, but I never use the syringe after they are started into growth; where the syringe is freely used there will be no danger of red spider making much progress. As soon as the enemy is perceived wash the leaves affected with a sponge, using water in which soft soap has been dissolved; at the same time the hot-water pipes should be painted with flowers of sulphur. The sulphur should be mixed with soft water and a small portion of soft soap until it is of the consistency of paint. The pipes should be so hot that the hand may be placed on them without feeling very uncomfortable. If this plan is tried on the first appearance of this troublesome pest there is a good chance of getting rid of it. I need not say that every precaution should be taken to prevent its appearance in the house. All woodwork should be well washed in winter, the walls limewashed, and the dormant wood of the Vines painted with sulphur and soft soap before starting the house. I have also, at the time the house is shut up for forcing, made up a bed of stable manure not quite fresh, but that which has been allowed to lay in a heap for a fortnight to allow most of the rank steam to pass off. This bed I have renewed occasionally with a small portion of fresh stable manure until the Grapes show signs of colouring, when I have it removed. No rank steam should escape from the bed when the Vines are in leaf, otherwise mischief will ensue. This is a very efficient preventive of red spider, and the moisture given off from the dung bed is beneficial to the Vines.

I once endeavoured to destroy red spider in a vinery, and I will state the method as a caution to others. Having read of unslaked lime being used in conjunction with sulphur to destroy this pest, I procured an 11-inch pot, and filled it with lumps of the lime fresh from the kiln; water was poured over it, which caused the usual violent heat; when it was in this state a handful of sulphur was thrown over it, and in less than one minute the pot was taken out of the house; but the mischief was done—nearly every leaf in the house was destroyed. It was a splendid house of Grapes just beginning to colour. The only thing that could be done in this case was to cut off a large portion of the Grapes, which had the effect of causing fresh shoots to be formed without disturbing the main fruit-buds at the base of the shoots. The house was soon fairly covered with leaves, and one would have thought that at any rate the red spider would have been annihilated. No such thing. As soon as the young leaves were well formed our invincible enemy was there in force.

Another case in which the destruction of the leaves occurs in a different way is the following. In a letter I have just received from an enthusiastic amateur and ardent cultivator of the Vine is the following passage:—"I was persuaded by a friend to place some fermenting material on my inside vinery border. I gave instructions to my man to do so. The manure was taken fresh out of the pigstye, and placed in the house. We shut all up as usual in the evening, but in the morning a most lamentable sight met our eyes. Every leaf was quite black, and a strong aroma of black tea or hay pervaded the house. Pot Roses and bedding plants in the house shared the fate of the Vines, purely from the ammonia, as there was no steam in the house at any time." I would not think of using pig manure to cause a steam, but stable manure put in in any considerable quantity when the Vines were in full leaf would be highly injurious.

These two cases may act as a warning to others, as it is very vexatious, after months of unwearied care and anxiety, to have all our anticipations destroyed in a few hours.

Judicious air-giving prevents to a certain extent the spread of red spider. Air-giving is one of the most important details in hothouse management, and if it is not properly attended to the inmates of the houses will not continue healthy. In all houses with an artificially-warmed atmosphere the ventilators at the highest part of the house should be opened early in the morning; a very small opening will be sufficient. This will cause a healthy circulation of the atmosphere, and as the sun gains power the ventilation can be gradually increased.

I ought to have stated that when fermenting material

is used to cause ammoniacal vapour in a vinery, it ought to be removed as soon as the Grapes begin to colour.—J. Douglas, *Loxford Hall Gardens.*

VIOLETS.

"Violets, deep blue Violets!
April's loveliest coronets,
There's not a flow'ret of the vale,
Kissed by the sun, wooed by the gale,
So sweet as the deep blue Violets."

Reminders as to the advisability of devoting a small portion of every garden to the cultivation of the most unpretending, yet sweetest of the sweet, of all hardy spring flowers, reach us at this season of the year. Such reminders are not at all too frequent, and are as necessary as they are seasonable, seeing that after all that has been said and written, many gardens are destitute of Violets altogether, while in others they are just tolerated in an out-of-the-way place, or, if cultivated, are frequently seen in positions but ill-suited to their requirements.

Violets, like butterflies, enjoy the fresh country air, and are at home amid the breezes of the rural districts. They hate dust and smoke, but like modestly to settle down in retired nooks, and give forth their perfume on the sunny banks where men least congregate. Yet, they are tractable; they may be brought very near the city, and in every garden where the Rose will flourish the Violet will grow and shed its fragrance.

Early autumn and early spring are excellent times for making plantations of Violets, and for replanting and renewing where beds are already established. They will flourish on the same plot for many years, providing a little attention is paid to their natural requirements of soil and position. The beds I replanted not long since have been devoted to Violet culture for probably over thirty years, and each year the plants flourish as satisfactorily as the year before. They are not at the foot of a south wall, a place where for shelter it is common to find them. It is a common error to plant them at the foot of walls. I have tried them thus planted in every aspect, but, except the one facing due north, they are poor in comparison with those grown apart from bricks and mortar. In such positions they are denied the essential benefit of the free current of air, so necessary to keep them stout and sturdy, and, in a measure, free from that devouring pest, the red spider.

Violets, fortunately, are not overnice as to soil providing it is fairly drained. While they enjoy liberal supplies of water in summer, a soil surcharged with moisture in autumn and winter is decidedly detrimental, and greatly impairs their blooming capabilities. On an old light kitchen garden soil I find no addition so good as turfy roadside trimmings containing a natural and considerable admixture of lime. In heavy soil, leaf mould liberally dug-in will be a suitable improvement. In any soil charred refuse and wood ashes will never be a mistaken application.

The beds here, in which rooted runners are planted 10 inches to a foot apart, are on the south side of a border of espalier trees. In this position they flourish well and bloom early. They are frequently watered, and occasionally dressed with soot, and are never materially injured by red spider. Under a wall with the same aspect they would be devoured. With a hedge for shelter, a current of air continually passes over them, while under a wall a dry parching heat is reflected on them, and the spider rejoices accordingly, and the Violet shrivels and languishes. Violets grow equally well under an east and west shelter of hedge or trees, but are not quite so early. They will also grow freely enough in a shaded place with a northern exposure, but, as a rule, do not bloom in sufficient abundance to make the beds attractive, or to give gatherings in any useful quantity.

The varieties I find the most free and useful are the Single Russian for autumn, winter, and first spring pickings; the Giant, a splendid variety, for succession; and the old Double Blue, for the latest of all. A few Neapolitans are also grown to cover with a frame. From this limited collection Violets may be had from October to May inclusive, or eight months out of the twelve.

Just half the beds are renewed and replanted every year. An advantage is found in this plan, as we are always sure of early blooms by the two-season plants, the young ones coming in immediately after them, yet with them, like parson and clerk, only in the case of the Violets the clerk is the best in the end. This only applies to the singles, as the old Double Blue likes to sing by himself, and is better not disturbed annually, or even biennially, as it is often slow in re-establishing itself. The Giant is an eminently useful variety. It possesses a vigorous habit, powerful odour, and is extremely free and floriferous. It ought to be grown by everybody. I had plants of the Czar at the same time. It is very similar in bloom and foliage to the Giant, but does not spread and increase nearly so fast, as my stock of the former is still small, while I have been able to give away hundreds of the Giant.

Violet culture is, perhaps, in itself too simple an affair to be entered on willingly by many, and the plants are, as a consequence, too often left to themselves. But seeing Violets so frequently dispatched as pleasant mementos of friendship, when I know they are met with a cheerful smile of welcome from invalids in cottage homes, and are a comfort to sufferers in hospital wards—knowing so much of their "sweet influence," I have pleasure in growing Violets, and urging others to grow them too.—J. W., *Lincoln.*

FORCED STRAWBERRIES FAILING.

I ask your correspondent "E. T. J.," whose Strawberries have failed, what was the state of the roots at the time of introducing the plants into the house? He says that after the berries have set the most of them remain stationary. Does not this show a want of proper rooting power? The fact that some of the fruit swell off shows a want of vigour somewhere, or why not the whole crop swell off perfectly? "E. T. J.'s" treatment in the house appears to be right; but I find that to be successful much depends upon the previous treatment the plants received. I maintain, and I believe it to be true, that during the short time the plant is growing it makes no more roots than are required for its support and the perfection of the fruit; and during the winter these roots must be preserved by every means in the gardener's power, so that they may be as plentiful and fresh-looking when the plants are put into the house as when growth is finished in autumn.

I object to and do not practise the plan of packing the plants away on their sides against walls of hothouses or other buildings; in such positions the roots are too dry, and are either killed or much injured, and when the plant sets its fruit it fails to swell off a crop from the want of roots. I do not say that "E. T. J.'s" failure arises from this, as he does not tell us how he wintered his plants, but it is just what I have known to occur. Protection for forcing Strawberry plants is absolutely necessary, but let the plants be plunged in either ashes or leaves, or beds of convenient size in the open ground, and throw rough litter over the plants in frosty weather. Set the pots upright, I have never found that wet injures them; the litter must be removed in mild weather. If Strawberry plants are well preserved during winter, and when forced introduced to a high temperature gradually, and provided with plenty of water, it is almost certain that a crop will swell off. This season of dull and damp weather causes my fruit to rot before it will ripen properly. Some sorts are more liable to this than others; if a small and a large sort are growing together the latter would go first. A humid atmosphere will cause it.—Thomas Record.

THUNBERGIA HARRISI.

Mr. Record (page 380) has written in praise of Thunbergia Harrisi (or laurifolia of some gardens) as a pot plant, which eulogy it well deserves, but it can bear no comparison to one planted out in a stove border. I had one at Hooley six years ago which covered one-half of the roof of a Nymphæa house and back glass partition. It was rare indeed to find it out of flower even in the winter months, but the beauty in summer was marvellous, the blooms hanging about a foot from the wires to which it was trained, in clusters of beautiful "Gloxinia-like lilac flowers," as Mr. Record describes.

I know of no stove climber in point of beauty equal to it, and of such easy culture. The compost used was two parts turfy peat, one part turfy loam, one part leaf soil, charcoal knobs, and silver sand. I had a plant also trained over the roof of a stove running north and south, but it did not do quite so well as the one in the Nymphæa house, which was facing north, with a glass partition dividing it from the vinery on the south side, the apex of which, being higher, shaded the plant from the direct rays of the sun.—J. C. Mundell, *Beechwood Park, Tunbridge Wells.*

Sale of Orchids.—Two hundred and fifty lots of established Orchids, drafted from E. Salt, Esq.'s, well-known collection at

Fernichurst, near Leeds, were sold by auction by Mr. J. C. Stevens on the 14th inst. They realised £520. The specimens for which the highest prices were given were Odontoglossum triumphans, £9 5*s.*; Cœlogyne cristata, £5 5*s.*; Odontoglossum Hallii, £17; Cattleya labiata, £5; Disa grandiflora, £12 12*s.*; Oncidium macranthum, £9; Cypripedium villosum, £6 10*s.*; and Masdevallia Veitchii, £36 15*s.*

DINNER-TABLE DECORATIONS.

After reading in your Journal the report of the Show at the Royal Horticultural Gardens on the 15th and 16th inst., I fully endorse all "D., *Deal*," has to say with regard to the elegant and simple taste shown by the fair recipients of the first and second prizes for dinner-table decorations, with one exception—viz., that the beautiful Ferns in the one and the Palms in the other that so largely contributed to the effect, were let through the tables. Now, I ask anyone acquainted with this kind of decoration, how ordinary dining tables could be made so accommodating as to admit of this practice, besides the difficulty with regard to the tablecloth, which must also be cut. If the pots, or any receptacle sufficiently deep to have supported the fronds of the Ferns or the planting the Palms, had been placed upon the table—the only way under ordinary and practical purposes—the effect, and probably the result, would have been very different.

As there is no doubt there will be a very extensive show of table decorations at the Birmingham Exhibition, I think it but right to call the attention of the Judges to this point.—W. J. Lucking.

Let me, in the name of common sense, protest against the system of making holes in dinner tables in order to insert the pots of plants that are used to decorate the table. No doubt pots are of themselves objectionable things, but if plants are used, suitable ornamental flower-pots or vases ought also to be used, and plants ought especially to be grown for the purpose in small pots, in order to be turned out of their pots and put into the vases.

I was not present to see the dinner-table decorations at South Kensington last week, but I see by the papers that the first two prizes in class 1 were won by designs in which plants were sunk through the table. Now, I have always been under the impression—it may be a wrong one—that the object of offering prizes for dinner-table decorations was to educate public taste in the matter, and that prizes ought to be adjudicated for those designs best adapted for general use. It seems to me utterly incongruous to see a plant growing out of a table. There is, I know, an old motto—*Ars est celare artem*, but I can hardly interpret this to mean that the art of arranging dinner-table decorations is to hide the pot. I am happy to say that in ninety-nine gentlemen's houses out of a hundred dining-room tables are still made either of mahogany or other valuable wood. No doubt, under the present fashions of *diners à la Russe* tables might just as well be made of deal; but it does not follow that we are to cut holes through mahogany tables in order to insert pots, and it is equally absurd that every time a large dinner party is given at a house, the tablecloths are to have holes made in them to put the pots through. I know I shall be told that pots can be put in at the junctions of the tablecloths, and napkins folded so as to hide the joins, and that deal leaves can be inserted between the mahogany ones, &c. But all these things are only makeshifts; as well do away with mahogany tables, and put up tressles and deal boards, and instead of valuable damask cloths use bleached calico and cover it with long strips of damask on each side.

But seriously speaking, I again assert that if large prizes are to be given for dinner-table decorations, general utility ought to be considered, and, as in *diners à la Russe* the very best quality of damask tablecloths ought to be used, and where it is possible each table should be covered with a single cloth without joins, it seems to me very absurd to encourage the fashion of sinking pots into the table. No doubt if one could divest oneself of the incongruity of the proceeding, and forget that deal slips must be used, and strips of damask folded, and the joins in the cloth hidden, that the arrangement may be pretty and effective in itself; but I have seen many a dinner-table beautifully and effectively arranged without, and what may look very well in a tent when we know that nothing but deal boards and tressles are used, would not recommend itself for general adoption at ordinary dinner parties. I am not finding fault with the Judges; they had only to adjudicate on the designs put before them, and I have no doubt, from the general agreement of the public press to their verdict, that they chose the most tasteful and ornamental designs, but I think some restrictions ought to be made in the schedule, and that prizes should be offered for dinner-table decorations best suited for universal use.

I must also add that it hardly seems within the province of the Royal Horticultural Society, a Society intended to advance the interests of horticulture, to offer prizes of such great value for mere matters of taste and ornament where no horticultural skill is called into requisition.—C. P. Peach.

For these I confess myself much disappointed with the result of the offer of £84 in prizes by the Royal Horticultural Society. I fully expected more entries, and of a more tasteful character. I cannot consider it the proper way to decorate a dining table by cutting three large holes in it, and putting therein pots of plants. I well know that if anyone were to so serve a table of mine, I should consider he had mistaken his vocation and also ruined my table. I suppose on this principle in future our dining table will be made with holes of various sizes in different parts of the surface, with wood to fit such holes when not required. At one of the Crystal Palace Shows I saw branches of trees stuck into holes made in the table. Surely this is table decoration with a vengeance! I do not consider it to come within the meaning or intention of the term, and I was exceedingly sorry to see the first and second prizes on the 15th inst. awarded as they were. Again, as a matter of taste, it does not look well, nor in my opinion is right, to have plants as though they grew in the table. For my own part, had I been one of the Judges I should have given the first prize to the exhibitor who only gained the third. I consider this table was decorated in the legitimate way, and was light and elegant to a degree that quite won my admiration, and the table appeared to me truly decorated, and not a spoiled piece of furniture after the cloth was removed. Perhaps we shall have dining tables made with no centres at all, but merely a kind of shelf around on which the plates of the guests will rest, and the middle part will be filled with cork rockwork, fountains with gold fish, &c.; but this would not be table decoration, although it might be very pretty in the eyes of some.

Table decoration I take to be an ordinary dining table with cloth and other matters placed thereon for the purpose of dining, and to make such still more pleasing, vases or other receptacles for cut flowers, or flowers in pots to be tastefully and unobtrusively arranged in their vacant spaces, and so done as not to hide one guest from the view of the other throughout, and of such colours also as not to detract in any way from the dresses and complexions of the guests. One ought to remember in dressing a table, that the guests *are a part of the decoration*. In some instances at South Kensington it was evident to me that this was in the mind of the artist. I am led to make these observations, as I feel that the ornamentation of the dining table is drifting into the wrong direction, and with the hope the table will at least be respected, if not the comfort of the guests.—F. R. H. S.

CARTON.—No. 2.

The Seat of the Duke of Leinster.

In writing of gardening at Carton the splendid kitchen garden claims our admiration and greatest attention. This garden is in every way worthy of the place, and it has distinct features peculiar to Carton. Although it is now fully one-half less than it was in the time of James Earl of Kildare, it is still large, being nine acres in extent within the walls. In this garden there is more evidence of careful and practical design than in any like garden with which we are acquainted. We have not been able to find the name of him who laid out this garden.

The accompanying plan will, better than writing, explain this peculiar style of garden. The walls are placed more obliquely than the plan shows them to be. It is evident the design was to give the greatest variety of aspect, and to reduce to the lowest draughts or currents of wind; and this form would equalise the influence of the sun as far as could be within such an enclosure. There are some 4000 feet in length of brick walls 14 feet high, and nearly all these walls are available for fruit trees on both sides. The only thing not complete in the walls is their want of a substantial coping.

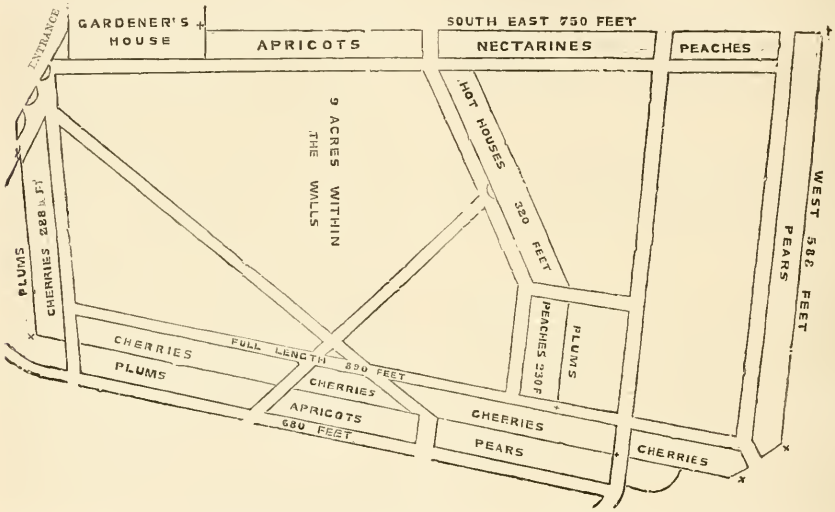
A glance at the engraving will show that the main entrance

to the garden is near the gardener's house, and that the main walks throw the quarters into triangular forms. The garden is quite flat, and on entering the gates the effect and harmony are very perfect. The whole garden is in high keeping: the broad walks are in proportion to the extent; the fruit trees on the borders are uniform, none exceeding 6 feet in height, and chiefly trained in pendulous form. Many of the Pear trees are beautiful specimens. There is a considerable extent of Apple cordons on the borders well done in H form, but we greatly prefer the older style of Apple-growing here in the form of the spokes of a wheel. On each side of the main walk and of some of the other walks bedding plants are grown in summer, and on a former visit these borders were most effectively planted.

It will be observed that the garden is in three divisions. The second division is separated from the third by a Yew hedge, and the most perfect of its kind. It is 10 feet high and 4 feet through—nothing could be more perfect than the Yew hedges at Carton. Along the whole length of the bottom wall, where the different sections of Cherries are grown on the inside, and the Plums, Apricots, and Pears on the outside, there are a series of buttresses of Yew, which extend the width of the borders on each side and grow over the top of the wall in the solid form. These hedges effectually break sweeping winds, and the effect is most artistic.

A portion of the third or back division of the garden is occupied by low standard fruit trees growing on grass. All the other parts of the garden with outside slips is regularly under vegetable cropping. Although the area may to many appear large, Mr. James finds very close cropping necessary to supply the demand. To a practical gardener like Mr. James it must be a great pleasure—I might say reward—to see how things have prospered under his care at Carton; and to see the walls again furnished with such fruit trees and in so few years, is a very high mark in practical gardening.

It is pleasing to know that a fair supply of manure is always at command for the garden. The supply of water is not equally sufficient, notwithstanding that the garden is in our opinion too near the water. In a garden of such extent the carrying of water, whether by horse or handcart, is a very un-



Carton Kitchen Garden.

satisfactory labour; and we were not a little rejoiced the other day to see a water-tower nearly completed, which will no doubt contribute to the much-needed high-level supply of the garden.

There are many details of culture that have come under our notice in the garden at Carton that would be of much interest, if Mr. James would favour his less experienced brethren with instructions how such results have been accomplished. The small fruit are well managed at Carton. There are but few varieties of Strawberries cultivated. Keens' Seedling and Sir Harry are preferred for early sorts; Admiral Dundas and Frogmore Late Pine are chosen for late sorts. The latter does extremely well at Carton. The British Queen will not do any good there, while near Dublin it is superb in average seasons.

The extent of glass is not so large as might be expected at Carton. The chief range of fruit houses was erected forty-six years ago; they are of the best form of lean-to, and now efficiently heated by hot water.

The first five houses of the range are planted with Vines. In the first, which is an angle house, there is a fine Fig of the Black Bourjassotte, which bears large crops of fine Figs: in this house the Muscat Hamburgh Vine produces fine fruit grafted on the Black Prince. The second house is a mixed house of good Vines, the Golden Champion showing fine bunches. The third is a Muscat house, from which heavy crops of fine fruit are annually cut. At this time the Vines are in fine and promising condition. The fourth house is chiefly planted with Hamburgh Vines, now a fine equal crop of compact bunches of about 2 lbs. each. The fifth is a late house planted with late sorts, and, like the others, is in fine condition.

A conservatory, which rises considerably above the range, divides the vineries from the Peach houses. In the conservatory there is a better class of plants than used to be grown in it. The Paxton house affords room to grow a greater variety than could be done in the crowded fruit houses. This Paxton house is a first-rate style of useful house, and most substantially fitted up; the length is 64 feet. It is 22 feet wide, and 14 feet high. Along the ridge is trained a fine Vine of Mrs. Pince's Black Muscat, which bears fine fruit. This Vine is planted inside.

Mr. James's Peaches are well known at the show tables in England as well as in Ireland, where the Carton Peaches stand at the head of the prize lists. There are four Peach houses all in the finest condition. The Peaches in the early house are now ripe. There is a fine equal crop of the Barrington, a valuable Peach where the fruit has to be sent to a distance by rail. In this house we were greatly pleased with the Pitmaston Nectarine; it is fine in size and rich in colour. There is an item in the treatment of this tree that merits remark. Two years ago the tree was unhealthy and the fruit small. It was found the roots were in bad order. Mr. James resolved to get

Carton Flower Garden.

new roots over the old ones, and to this end made and applied a composition to the stem of the tree just at the ground's surface: in due time roots were there in vigorous growth, and when fully established the old roots, with a portion of the stem, were cut clean away. This is a most successful and interesting experiment. The Royal George and Grosse Mignonne Peaches are finely cultivated here. These Peach houses are in beautiful order, and present the highest culture.

There is another isolated fruit house, which may be noted for its peculiarity and as an example of what a practical man will turn out of a house which is constructed in the extreme opposite of what modern horticulturists deem essential for successful culture. This house is in a part of the frame ground, and in appearance gives one the idea of a lecture hall or grand stand. The back and ends are of solid masonry; the front and roof is glass in heavy frames. The length of the house is over 40 feet, the width 15 feet, and the front glass at least 15 feet upright. The roof may be described as flat. At about 10 feet from the floor a wooden gallery is erected the whole length of the house, resting on the back wall, and the front supported on pillars. On this gallery is erected a stage having six lines of shelves. On these shelves we saw a very good crop of Strawberries in pots, notwithstanding the distance from the light. Vines are trained up the front and under the roof, and on these Vines we have seen very good fruit. The house is not heated.

Much forcing is done at Carton by the old hotbed frame, and right well done; but a well-ordered range of properly heated pits would be a great advantage to this establishment, and save a large amount of uncertain labour, especially early in spring.

On critical points we have no intention to enter, and leave this fine garden with much pleasure and admiration.

Between the kitchen garden and the mansion there are a variety of walks, some good shrubs, fine Beech trees, the greatest number of Cedar trees we have seen in Ireland, of fair growth and well planted as to position; a children's garden with tea-house, and an interesting space—a sort of open garden, at the end of the Cedar walk. Here at many points is observed a judicious improvement in reducing the common Laurel and dug borders, and widening the space to introduce a new class of trees and shrubs, which will produce a more varied and lightsome effect.

The views we published in our last number will give a good idea of this splendid mansion on the garden front. The chaste grouping of the inferior offices at the extreme wings could not be shown, but these buildings have much effect on the appearance of this classic mansion, which was designed by R. Castle, who died at Carton in 1751. It is no part of our object to speak of the splendour or furnishing of this mansion; it is enough to state that the building extends in a straight line for 400 feet, with a breadth of 56 feet. The centre of the garden front, which appears in the engraving on page 406, has a façade of 200 feet, with two wings each 85 feet, and these are continued as shown on page 407.

The garden in front (page 421), seems appropriate, and was laid out from designs of the late duchess about thirty-five years ago. The hedges, or rather mouldings, round the four compartments are of Yew, and stand about 2 feet high and the same through. The keeping of these is extremely neat, and at this time of year the young tips give all the effect of a beautiful bronze moulding. The space from the outer to the second hedge is 8 feet in grass, and the beds are laid out in geometric form, with a figure on a pedestal in the centre of each square. The beds are filled at this time with spring flowers, of which Wallflowers and Pansies are the most telling. With bulbs, Mr. James uses a carpet of Silene and such-like plants, and this gives a very nice furnished appearance. The set of half-scroll beds on the grass between the gravel walk and sunk fence do not correspond with this garden, and having no background, however well planted, they mar the picture.

The Yew avenue dividing the flower garden is a distinct feature, admired by some, and not understood by many. This avenue, as will be seen on the plan, divides the garden compartments. It is 60 feet wide, and about 300 yards long. This glade of grass is kept like a carpet. We are extremely glad to see that every alternate Yew is being taken out. The close line of Yews had become far too much of the hedge form; now what is thinned out looks light and ornamental.

We take another look back the Cedar walk, and Mr. James pleases us with the idea that the fence will be thrown back, and a line of young Cedars planted to match those we admire; this would make a fine avenue, and we see nothing to prevent its becoming so. We could linger long here, but time warns, and we proceed to the Cottage garden.

The Cottage is about a mile from Carton, and we proceed to it by the walk on the high ground on the left of the lake. This is a charming walk, with bowers in which to rest and study a beautiful scene. The only things that do not please here are the islands in the lake; they are too tame and formal. When the cleaning of the lake is again commenced we trust the islands will not be forgotten, as it would not entail any extra expense to add to one or more of the islands instead of moving it on to the shore.

When nearly opposite the Cottage in a sweet morning of May, with such singing of birds, with such a breadth of budding and varied leafy trees, with such quiet repose, the curling smoke from the Cottage and the noise of the cascade just giving sufficient animation, we feel a veneration for the place, and that it is a fit home for a great peer.

On crossing the bridge over the cascade we are in a new scene; the ground is more varied in hill and dale, the water in the form of lake and river, trees taller and in more variety. The Cottage and garden stand on an irregular ridge; we traverse a hollow to the right of the Cottage, in which much has recently been done in clearing away scrubby wood and planting choice trees of Coniferæ. Already the Deodars are effective. A specimen of Picea grandis is noticeable for remarkable growth. Associated with these are fine trees of markable growth. Associated with these are fine trees of a Larch, at least 100 feet high, some fine evergreen Oaks, and a good specimen of the Oriental Plane. It is surprising how few of this tree have been planted in Ireland. As we rise on to the level of the Cottage and garden there are some fine groups of trees, composed of Spruce, Silver Fir, and hardwooded species. Here we find still a considerable breadth of park between us and the boundary, and we obtain a glimpse of the rocks and Furze in the distance by the "black bridges."

We will not attempt any description of the interior of the Cottage; it may be simply described as fairy land. The "shell-room" is the creation of the late duchess, and it is a marvellous example of systematic arrangement and patient industry. The garden is in harmony with the Cottage, a part Rose, part flower, part rock garden, all in good keeping, but as yet not clothed in its summer dress; the banks, however, delighted us. Mr. James is clearing away rubbish and introducing wild flowers with charming effect.

Our hurried visit to Carton, and pressure of business, have not allowed us to enter so fully into details as we wished to do regarding the gardening and gardens at Carton, and we fear many of our notes will give but a feeble idea of this noble place. We have only to express a wish that Mr. James will long be spared to rule over the gardens he now so well directs, and an earnest hope that the style of flower-gardening may find, as it deserves, more adopters in Ireland.

THE ROYAL HORTICULTURAL SOCIETY'S BIRMINGHAM SHOW.

On my way to the Manchester Exhibition I made a *détour* to Ironopolis (pardon the mixture, which is not so barbaric as lithofracteur), for the purpose of observing the spring gardening at Mr. Quilter's, at the Lower Grounds, Aston, of which I had heard a great deal, but of which I can say "the half was not told me"—more of this another week—and in doing so I was enabled to obtain some information with regard to the forthcoming meeting, which may not be unacceptable. I enjoyed the opportunity of journeying to Derby with the indefatigable Secretary of the Local Committee, Mr. E. Badger, who is working at the carrying-out of the details with a vigour and energy that will materially help success.

The tent is rapidly approaching completion; it will be much larger than that at Nottingham, and will be arranged on somewhat the same plan, all the plants being placed on the grass, while other tents will be devoted to fruit, cut flowers, and table decorations. All the appearance of disorder and untidiness which were conspicuous in the grounds at Nottingham will be avoided, for Mr. Quilter is a man of order. No vans or horses, nor litter of any kind, will be left on the ground; and in order to show his enterprising character, I may mention that he has agreed with the London and North-Western Railway Company to erect a permanent station at the bottom of his grounds, which will cost him nearly £600, so that visitors from all parts will be able to set down at the very place itself.

Mr. Badger informed me that the idea which had suggested itself to me, and which I mooted in a coutemporary, had also occurred to the Council at Birmingham, and that a room will be specially set apart for horticulturists for meeting, where writing materials, &c., will be provided (but no refreshments), and also that instead of a formal dinner there will be each day dinner provided at a moderate charge, which will be presided over by some horticulturist, and when opportunity for friendly chat and intercourse will be given. It is also the intention of the Council to invite Prince Arthur to a public luncheon, which will of necessity be an expensive affair. It is not known yet whether he will accept the invitation.

I have one word of advice to give to those who may wish to spend the week at Birmingham, and that is to secure beds beforehand. First-class hotel accommodation did not seem to be very abundant in Birmingham. There will be a great influx of visitors, and already the accommodation in one or two of the principal hotels has been bespoken.—D., *Deal*.

WOODLICE.

In your paper of the 25th ult. (page 352), in an answer to "O. O.," you say, "You must be mistaken; they will not walk through, much less 'under' water." Are you quite sure? Have you ever happened to put their breathing organs under the microscope? I have been assured by an eminent scientific authority, a profound microscopist, that those organs are true gills. Be that as it may, it is certain that they can live and walk under water, although they may not like to do it by choice. Four or five years ago I had some small fish in a glass globe, and, foolishly forgetting that their throats were too small to enable them to swallow woodlice, I threw half a dozen in to them. Not one of them was eaten, but all were walking about at the bottom of the globe for several days. I do not remember how many, nor do I now remember how they were ultimately disposed of.

I do not suppose there is any difference in the species of our woodlice in the Underchiffe; they are our greatest plague of the insect world. I remember, some eight or nine years ago when I came "in residence" here, complaining to my man; and his answer was, "Well, sir, I know they are a very great plague; but it may be some consolation to know that for every one you have got here, Captain Cowper Coles (who then lived on a level 50 feet lower) has got fifty." By the way, our woodlice do not roll themselves up in a ball when disturbed, and possibly there may be some difference of species.—H., *Ventnor*.

[There are many species of woodlice, and some are aquatic. Your species probably is Oniscus assellus, which does not assume a globular form when disturbed. The common woodlouse, O. armadillo, does assume that form, and, though we know that it dislikes that fluid, will not touch it voluntarily, and hastens out of its haunts if water is applied to them, on the receipt of your letter we placed a not very strong specimen in a half-pint tumbler of water, kept it there more than an hour, and in five minutes after being taken out it had so far recovered itself as to commence a retreat. We will experiment further.—Eds.]

ROYAL BOTANIC SOCIETY'S SHOW.

May 22 and 23.

Horticultural exhibitions come thick and fast upon us; the Crystal Palace, Royal Horticultural, Manchester, and now the Royal Botanic Shows, have followed in close succession. The last-named Society has been somewhat unfortunate in its fixtures this year, for two of its shows clash with others—that of to-day and yesterday with Manchester, that of June 19th with the Royal Horticultural Society's Meeting of the same date. It might be thought that Manchester would not affect London—but it did; it may be thought that a subsidiary meeting at South Kensington will not affect the June Show at the Regent's Park—we think it will; and, though not advertised, if the Royal Botanic Society's authorities were aware, previous to fixing on that day, that another London meeting had been already arranged for the same date, we consider their adoption of it neither in good taste nor conducive to their own interest.

Coming now to the Show itself, the concurrence of Manchester had evidently a great effect, not only on the quantity but the quality of the subjects exhibited; the Show is thin compared to those of past years, but it must be acknowledged, and it is on all hands, that there is no more charming sight than the great tent at the Regent's Park when filled with specimens at all fit for exhibition. We have said before—we say it again—it is a scene of fairyland. The finest feature in the Show was decidedly the Azaleas shown by Mr. Neighbour, gardener to Sir W. Clayton, Harleyford, Great Marlow. These were giant specimens, upwards of 6 feet high, and each literally a mass of flower. There was the rose-purple of Coronata, the scarlet of Gem, the white of Vesta, the red-striped form of the white Gledstanesi, and Extrani, violet-rose. Mr. Turner, of Slough, sends several excellent groups of Azaleas, as also Messrs. Lane & Son, of Berkhampstead; some well-grown Rhododendrons in pots come from the same firm; and Messrs. Lucombe, Pince, & Co., of Exeter, also exhibit a group.

In stove and greenhouse plants the grand specimens of Mr. Baines were much missed; but there is another good man to the front—namely, Mr. Ward, gardener to F. G. Wilkins, Esq., Leyton, who seems to have adopted the "*veni, vidi, vici*," of Cæsar, for wherever he appears it is as a conqueror. He has by far the best collection of nine in the Show, by far the best six, had the best Pelargoniums, and, better still, was a long way ahead of all others in Orchids. To return to his stove and greenhouse plants—among his specimens in the class for nine are remarkably fine examples of Erica tricolor Wilsoni and elegans, Erica candidissima, Statice profusa, Genethyllis tulipifera, and Statice profusa. In his group of six are very fine plants of Tetratheca ericæfolia, Erica Massoni, Dipladenia amabilis, and Genethyllis fuchsioides. Mr. J. Wheeler is second, and Mr. G. Wheeler, gardener to Sir F. Goldsmid, Bart., Regent's Park, third, in the same class. Among nurserymen the prizes went to Messrs. Jackson, of Kingston; Mr. Morse, of Epsom; and Mr. W. Cutbush, Barnet. For a group of twenty stove and greenhouse plants in 8-inch pots, Messrs. Jackson are first with a very ordinary group, neither remarkable for novelty nor fine growth. The same firm also contribute Heaths, which, as usual with those they exhibit, are very good.

Roses in pots from Messrs. Paul & Son and Mr. Turner, of Slough, are exceedingly well represented both as regards large and small specimens; and in the amateurs' class Mr. Terry, of Youngsbury, has a more than usually good group of six.

Mr. Ward, as already stated, is far before all others for Show Pelargoniums, with Maid of Honour, 4 feet in diameter, and large, splendidly bloomed plants of Lady Canning, Alabama, and others. Mr. James, of Isleworth, is second, and Mr. Neighbour third. Excellent groups of Calceolarias are shown by Mr. James and Messrs. Dobson & Sons, of Isleworth; of hardy herbaceous plants by Mr. Parker, of Tooting, and Mr. Ware, of Tottenham, also of alpine plants by the latter.

For nine Orchids Mr. Ward is first with excellent specimens of Odontoglossum Alexandræ, Cypripediums villosum and caudatum, and Oncidium bifolium. Mr. Hill, gardener to R. Hanbury, Esq., The Poles, Ware, is second with excellent examples of Chysis Limminghii, Cattleya Mossiæ, the Foxbrush Aërides, and Phalænopsis Lüddemanniana. For six Mr. T. Godfrey is first.

For Exotic Ferns Mr. Williams, of Holloway, is first with fine specimens of Gleichenias semivestita and flabellata, Asplenium nidus, &c.; and among amateurs Mr. Godfrey has a very nice group. Mr. Williams sends a fine group of Palms and two large specimens of tree Ferns.

The only collection of bedding plants is from Messrs. E. G. Henderson & Son—this is exceedingly well arranged in a demilune edged with Echeveria glauca, Golden Feather Pyrethrum, and Coleus Verschaffelti.

For new plants and florists' flowers certificates were given to Mr. Turner for forcing Pink Coccinea, and Tree Carnations Marchioness of Westminster, Caliban, Queen of the Belgians, and Princess Christian; to Messrs. E. G. Henderson for Golden Tricolor Pelargoniums Enchantress and Golden Eagle; to Mr. Williams for Zamia cycadæfolia, Veitchia canterburyana, Kentia australis, and Davallia Tyermanni; to Messrs. Lucombe, Pince, and Co. for Polystichum angulare cristatum; and to Mr. Barker for Iberis Pruiti.

A. Smee, Esq., of Finsbury Circus, sends a dish of Apples of this year; and Mr. R. Dean, Ealing, Mauve Beauty Stock, a very fine pyramidal kind densely packed with flowers.

MANCHESTER HORTICULTURAL EXHIBITION.

May 17.

"Only a provincial show!" will not apply to those that are held at Leeds, York, or Manchester; in fact, now-a-days provinces seem to be set on one side in exhibiting. If we hold a show in the metropolis we are dependant on the provinces to furnish their quota, and Rugeley, York, Beverley, and other places send their contributions; and a show that can gather together Williams from Holloway, Paul from Cheshunt, Baines from Southgate, Lane from Berkhampstead, Rollisson from Tooting, and Dixon from Beverley, can in no way be called provincial, and may well lay claim to being national. Nay, more:

I do not believe, taking it all in all, that the metropolis could furnish such a show as that at which I have been "assisting." Certainly I can say, with the Crystal Palace Show in my recollection, it is superior to that. How is it that these northerners so beat us in the south? Take even Brighton, with its 90,000 inhabitants—even it could not maintain its grand show; and we can in vain in the south of England look for an exhibition at all to be compared with the three that I have named. And what princes are their merchants! By the kindness of a warm-hearted and hospitable horticulturist—Mr. Simpson, of Whalley Bank, I had the pleasure of going over, in very good company, the magnificent demesne of Mr. Sam Mendel, the most wonderful place I have ever visited, with its 85,000 superficial feet of glass, so ably managed by Mr. Petch. But if I were to dilate on the kindness and hospitality I met with I should never get to the Show.

The Exhibition is held in a large tent 350 feet long and 75 feet wide, with an exhibition building at right angles. Viewed from the mound at the end, one is much reminded of the International Exhibition. It is admirably arranged, and contains a grand collection of plants. As it is somewhat similar to that which is in course of erection at Birmingham for the Royal Horticultural Society's Show there, I may say that its plan is this: There is an elevation at one end from whence, as I have said, you have a grand view of the whole; this mound is arrayed with Rhododendrons from Lane's, then a row of Ivies, and edged with a row of pot Roses. Down the centre of the tent are circular mounds neatly turved, and along each side are turf banks, which are undulated according to the circles in the centre. The first of these circles contained large Azaleas; the second, the large Roses in pots; the third, Azaleas; the fourth Pelargoniums; the fifth, collections of plants arranged for effect; and the last Ferns, the tent ending with a nice collection of good Rhododendrons from Mr. Yates planted in the ground. Towering above these were here and there tree Ferns; while all along the sides were carefully and tastefully arranged the various collections of Ferns, Calceolarias, Succulents, Alpine plants, &c., all giving a very cheering aspect to the tent. In the Exhibition house are arranged the Orchids and the magnificent plants of Messrs. Baines, Cole, and others. Conspicuous amongst Mr. Baines's were Francisœa confertiflora, Ixora amboynensis, I. coccinea, Azalea Iveryana one sheet of snow, Erica Cavendishii, Dipladenia amabilis—in fact, sixteen such plants were never before exhibited, and, as Mr. Baines said, if he lived for twenty years he did not think he should ever exhibit a better lot. Mrs. Cole & Sons were a good second, their best plants being Pimelea spectabilis, Ixora Colei, Erica Cavendishii, and Aphelexis humilis rosea.

Orchids were magnificent; for many years London has been unable to furnish such a bank as was shown here. Mr. Callender had fine plants of Lælia purpurata, Vanda suavis, Odontoglossum Phalænopsis, Phalænopsis amabilis, Aërides Larpentæ, Brassia verrucosa, Odontoglossum Pescatorei, O. Alexandræ, and Aërides Dayanum. This was a magnificent lot of plants. Without enumerating the various classes, suffice it to say that glorious masses of Dendrobium nobile, Oncidium sphacelatum, Vanda insignis, Cyrtopodium punctatum, Dendrobium densiflorum, Vanda suavis, Phalænopsis grandiflora, were exhibited by Messrs. Yates; whilst in other collections I noticed Cypripedium Stonei, C. barbatum, C. giganteum, Aërides Lobbii superbum, and Odontoglossum citrosmum. Mr. Williams, of Holloway, had magnificent plants of Cattleya Mossiæ, C. Skinneri, Dendrobium densiflorum, Cypripedium villosum, C. barbatum nigrum, Vanda suavis, Trichopilia crispa, Aërides odoratum purpurascens, A. Fieldingii, and Vanda tricolor. It is impossible to exaggerate the beauty and finish of this collection.

Large Azaleas were exhibited. Amongst amateurs Mr. Callender, Dr. Ainsworth, and Mr. Baines were the chief exhibitors; among nurserymen Mrs. Cole & Son, and Messrs. Lane and Son. These plants were very fine, but not equal to those exhibited in Mr. Baines's group of greenhouse plants, which were really marvels.

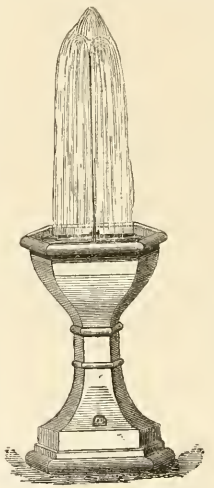
Messrs. Paul & Son contributed some grand Roses in pots, such as we have seen at Kensington and the Crystal Palace. Their plants were Charles Lawson, very fine; Camille Bernardin; Madame de St. Joseph, extra good; Vicomte Vigier; Madame Thérèse Levet, beautiful; Beauty of Waltham, excellent; Victor Verdier, a little *passée*; Souvenir d'un Ami, Céline Forestier, John Hopper, Anna Alexieff, Madame Victor Verdier. The perfect finish and colour of this collection were extraordinary.

The best plants of variegated Geraniums I have ever seen exhibited were shown by Mr. W. Young, of Heaton Mersey. They were Mrs. Dix, Sophia Dumaresque, Flambeau, Italia Unita, Lady Cullum, and Princess Clothilde. The plants were not only large, but well-shaped and highly coloured, and showed no sticks nor supports of any kind. I have never seen better plants of zonals than those exhibited by Mr. Webb, gardener, Birch Vale, Stockport; they were Amy Hogg, Hector, White Perfection, Le Grand, a remarkably fine plant, Clipper, and Lucius. The same exhibitor had six plants of Fuchsias, which were very good.

As an instance of what may be done by one whose heart is in it, I think the best example was the collection of British Ferns shown by Mr. Crewe, grown in the very heart of Manchester. They were beautiful plants, fresh and green as possible, of such sorts as Athyrium F.-f. plumosum, Lastrea Filix-mas cristatum, Polystichum angulare, &c. The Exhibition was weak in Show and Fancy Pelargoniums, only one collection of each being exhibited. Some beautiful collections of herbaceous plants were exhibited by Mr. Ware, Messrs. Rollisson & Son of Tooting, and Mr. Yates. What a comfort it is to see these plants coming into favour all over the country, to hear of their being preferred to bedding-out plants, and to see Mr. Hooper's stands of Pansies surrounded by admirers and buyers.

It would exceed the limits of the space allotted to me to enumerate the varied beauties and excellencies of the Show. Mr. Findlay may well be proud of his bantling, and Manchester be proud of Mr. Findlay. He entered upon it in 1867, in almost opposition to the wishes of the Board; but the first year's receipts gave a clear profit of £500, which has gone on increasing ever since; about £3000 of debt has been wiped off, and the Society placed on a firm basis. His quiet and courteous manner, and his zeal and activity, have contributed to this end; and one can only regret that he does not enjoy a better measure of health to enable him to have the greater pleasure in his work. I may only add that all the arrangements of the Exhibition seemed to me to be carried out with care, thoughtfulness, and kind consideration to the wishes of the exhibitors, that there was no hitch, and the warmheartedness and geniality of these northerners put us in the south of England to shame.—D., *Deal*.

SELF-ACTING FOUNTAIN.



It gave me great pleasure to see the subject of fountains noticed at page 467 of your last volume, for among garden ornaments they ought to hold an eminent place, especially where a good head and supply of water can be obtained. But fountains of a humbler character, and self-acting, may be placed in a situation where a few gallons of water can be had: such is the fountain I am about to describe, made by a tradesman of this place for his own garden. It will throw a jet of water 10 feet high for a short time, but may be regulated to throw one a height of 3 or 4 feet for two hours. It is self-acting; the water descends from the basin to the lower cistern in the base, to be pumped up again through the aperture *a* in one minute into the upper cistern for the supply and working of the fountain. This is constructed of lead and zinc, is of a hexagonal shape, and painted stone colour. There are small places in the angles for the insertion of pots of Ferns or drooping plants, to hang over the edges of the basin. Another fountain of a different design is now being made, and it will have a basin for gold fish and other adjuncts. One great advantage of this self-acting fountain is that it may be removed by one man into any part of the grounds where it may be desired.—James Pringle, *Wragby*.

Maréchal Niel Rose.—Seeing in your last number a notice of a Maréchal Niel Rose, I am induced to mention a similar plant, which I saw this spring growing in the nursery of Mr. A. F. Godward of this place (Southend, Essex). It is planted inside a small lean-to greenhouse, about 8 feet high at back, 3 feet at front, 7 feet wide, and 7 yards long. The Rose is trained inside the glass roof, and, when I saw it in April, nearly covered the whole area. It is of but one year's growth. On the 16th of April last Mr. Godward cut his first blooms, and at that time tried to count the number on the tree. There were to be seen upwards of 250, buds nearly open, and full-blown Roses. No doubt many were hidden amongst the leaves

which drew my attention by their rich bright appearance. Most of the blooms were large and very double, of an oval shape, and rich in colour. The perfume was quite wonderful. The house is 10 or 12 yards from the road, yet the perfume there was delicious.—I. E. M.

REVIEWS.

The Varieties, &c., of Wheat. By Colonel J. Le Couteur, F.R.S. Second Edition. London: H. J. Johnson.

It is now about thirty-four years since the author of this valuable work obtained the prize offered by the Royal Agricultural Society for his essay on the varieties of Wheat (Journal, vol. i., p. 113). His efforts for the improved cultivation of this invaluable plant have, in conjunction with other able labourers, been productive of a gradual and considerable increase in the average produce of our Wheat lands. We would gladly extract from his work many of his remarks if they were suitable for the columns of a journal of horticulture. There is every reason to believe that Wheat was consumed by man from the very earliest of his days (Gen. iii., 19), "In the sweat of thy face shalt thou eat bread."

The selection of this grain as the food of man in so many countries may be attributed to its chemical composition: it contains, in fact, the various substances necessary to repair that gradual waste of our tissues and bones which is incessantly going on. The carbon which is ever emitting from our lungs, the nitrogen of our flesh, the salts of lime which are removing from our bones, are all supplied in the bread we eat. Thus, in one hundred parts of the flour of Wheat are contained—

Water	16 parts.	Fat	2 parts
Gluten	10 „	Starch, &c.	72 „

The "&c." noted in the foregoing analysis is chiefly the mineral matter or ash, and forms about 1½ per cent. of the flour of Wheat. In one hundred parts of the ash from the Hopetoun Wheat Professor Way found (Ibid., vol. vii., p. 631)—

Silica	5.63 parts.	Peroxide of iron	.29 parts.
Phosphoric acid	43.98 „	Potash	34.51 „
Sulphuric acid	.21 „	Soda	1.87 „
Lime	1.80 „		
Magnesia	11.69 „		99.98

From these chemical researches we see why bread is so universally consumed by mankind in all climates that are adapted to the growth of the cereals. The gluten, which forms one-tenth of the flour of Wheat, is nearly chemically identical with albumen (white of egg), and the fat of the flour is the same as the fat of animals; and when we examine the mineral matter we find the same phosphoric acid and lime of which bones are so largely composed.

Of the marvels of this constant waste and supply of the bodies of animals the world are far too little aware.

Flowers of the Field. By the Rev. C. A. Johns, B.A., F.L.S., &c. London: Society for Promoting Christian Knowledge.

The fact that the *eighth* edition of this volume is now before us is a powerful evidence of its worth. No book that is not good ever has such an extensive success. The title is not sufficiently explanatory, for the volume contains a brief description—brief, yet sufficient for identification, of our native flowering plants. Nor is that all that renders it useful, for to facilitate the identification the plants are arranged according to the Natural System; there is a woodcut of one species in each genus, and a glossary and index close the work.

That a taste for an acquaintance with our wild flowers is increasing truly gladdens us, for it is in every aspect a healthful taste—healthful to the mind, healthful to the body; it makes us acquainted more with the wonderful and beautiful, and it tempts more into the pure air and sunlight. Moreover, let all parents remember that to establish in their children a love of plants is to secure to them one of the most inexhaustible sources of pleasure, and in many instances pleasure leading to wealth and distinction. The first book that takes hold of the youthful mind often has a great influence over the youth's future. Sir James Edward Smith, President of the Linnean Society, attributed his devotion to botany to a botanical lesson-book of his childhood; and Sir Joseph Banks, President of the Royal Society, told that he was led to botany by the cuts in Gerarde's "Herbal" being a resource of amusement in his early days.

To discover an unpossessed plant for our herbarium is a vivid pleasure. We can fully appreciate the feeling that caused Linnæus to fall on his knees by the side of the Furze when he saw it for the first time bespangled with its golden flowers; we fully appreciate the feeling, because vividly do we remember in our youth kneeling by the first Wood Anemone we saw, and venting our admiration in the exclamation "Oh! my pretty Page." We cannot give a fairer specimen of Mr. Johns' volume than by extracting its engraving and description of that flower.

"A. nemorósa (Wood Anemone, Wind-flower).—Flower drooping; sepals or petals six; carpels without tails.—This is one of

A. nemorosa.

our most beautiful spring flowers, adorning our upland woods at the season when Primroses and Violets are in perfection. The petals and sepals are generally white, but not unfrequently tinged with pink externally; more rarely they are of a delicate sky-blue, both within and without. Fl. March—May. Perennial."

Those who are led to companionship with our native plants will not rest satisfied with this volume, therefore we will add the following notes on this our pet flower from our own "Wild Flowers of Great Britain," a work which admits of more details than Mr. Johns could include in his small volume.

"The name Anemone is derived from the Greek *Anemos*, the wind, and is well applied to most of the species of the genus, for they not only do not shrink from, but really benefit by the wind's buffetings—facts gently touched by two poets who have written thus:—

"'The veteran troop who will not for a blast
Of nipping air, like cowards, quit the field.'—*Mason.*

"'The coy Anemone, that ne'er encloses
Her lips until they're blown on by the wind.'—*Horace Smith.*

"The specific name *nemorosa*, or more correctly *nemorense*, refers to this species being a frequenter of wooded localities.

"'——— thickly strewn in woodland bowers,
Anemones their stars unfold:'

and, as Charlotte Smith descriptively adds—

"'Gather the copse's pride, Anemones,
With rays like golden studs on ivory laid,
Most delicate! but touch'd with purple clouds,
Fit crown for April's fair but changeful brow.'

"The flowers fold up in a curious manner, and bend downwards, against rain. The whole plant is acrid. Goats and sheep eat it, but it is apt to disorder the latter violently. Horses, cows, and swine refuse it. The recent flowers are poisonous, and the plant yields an acrid, volatile principle, so corrosive as to be used externally instead of cantharides. It is also serviceable in headaches, tertian agues, and rheumatic gout. This plant is sometimes found with yellow dots on the under surface of the leaves, which some have supposed to be the work of an insect, but without sufficient proof. Dr. Pulteney, in Linn.

Tr. ii., p. 305, has rendered it probable that they are formed of a minute species of Lycoperdon. These plants are evidently in a diseased state, of a yellow green, and do not bear flowers. The leaf of Betonica officinalis is liable to be affected in the same manner; also, that of Fragaria. The roots afford a nidus for Peziza tuberosa. By garden culture the stamens become transformed into supernumerary petals, and the flower then is known as the Double Wood Anemone, and by many as the Double White Hepatica."

RUSTIC BRIDGES.

A rustic bridge should never be introduced into pleasure grounds, except where it is evident that no passage is needed beneath it, and none but foot passengers require to pass over it. It should be moderately ornamental, as in our engraving, when connecting the dressed parts of the grounds with the wild picturesque parts.

Rustic Bridge on the River St. Maude, Bois de Vincennes (From M. Alphand's "Promenades de Paris").

Mr. Wheatley justly remarks that "Bridges are inconsistent with the nature of a lake, but characteristic of a river: they are on that account used to disguise a termination. If the end can be turned just out of sight, a bridge at some distance raises a belief, while the water beyond it removes every doubt of the continuation of the river: the supposition immediately occurs, that if a disguise had been intended, the bridge would have been placed further back; and the disregard thus shown to one deception gains credit for the other.

"The vulgar foot bridge, of planks only, guarded on one hand by a common rail, and supported by a few ordinary piles, is often more proper. It is perfect as a communication, because it pretends to nothing further; it is the utmost simplicity of cultivated nature; and if the banks from which it starts be of a moderate height, its elevation preserves it from meanness. No other species so effectually characterises a river; it seems too plain for an ornament, too obscure for a disguise; it must be for use: it can be a passage only; it is therefore spoiled if adorned; it is disfigured if only painted of any other than a dusky colour."

PRIMULA JAPONICA.

The subject of the present notice is one of the most striking and beautiful of perennials, and as its fortunate discoverer truly designates it, a very queen amongst Primroses. It was first exhibited by Mr. W. Bull, of Chelsea (who has kindly furnished the accompanying illustration), on May 3rd, 1871, at one of the meetings of the Royal Horticultural Society. I have often seen it since, but none of the specimens have equalled in freshness and rich colouring that splendid basket of plants. The leaves resemble gigantic specimens of the common Cowslip, from the centre of which rise the magnificent spikes clothed with tier above tier of regularly-arranged rich magenta-coloured flowers. It was introduced from Japan through the exertions of Mr. Robert Fortune, the celebrated traveller in China and Japan. After numerous failures, seeds received by him vegetated in this country.

As a distinct decorative plant for the greenhouse, conservatory, or open border, the Primula japonica will be invaluable. Although so recently introduced, many distinct forms of it have been produced, some of them even deeper in colour than the type; other colours obtained are lilac, white, carmine, rose, &c.—indeed, I saw a number of plants the other day, and not two of them were alike. Some have the flowers much larger than others, and, no doubt, in the course of a few years we shall have selected and improved strains of it, as we now have of the Chinese Primrose. As regards culture, the plant is not a native of a warm country, and with us it ought not to be treated as an exotic, but it is stated that it is found growing on the banks of watercourses in good loam. The plants flowering this spring are seeding freely, so that when we can obtain fresh seeds of our own growth it will soon be abundant. As yet the great demand for it has kept the price up, so that it is beyond the reach of many cultivators.

The seeds will vegetate freely in a common greenhouse or frame, and the treatment they require is much the same as would be recommended for ordinary Primroses. When the young seedlings are old enough to handle, they should be pricked out into boxes or pans, allowing a distance of 2½ inches between each plant. The compost used should be three parts turfy loam and one of leaf mould, with a little sand if necessary. Place the boxes close to the glass in a cold frame or pit. Should this be in summer and the weather hot, it would be as well to turn the back of the frame to the south, so that the glass might face the north; if this cannot be done shade slightly. When the plants are well established in the boxes, those which

Primula Japonica

are intended for pot culture should be potted, one plant in a large 60 or small 48-pot, and those intended for the open borders should be planted out at once.

The plant has proved itself to be quite hardy in the neighbourhood of London as far as my experience of the last two winters goes, consequently it will prove a very beautiful and interesting feature in the ordinary herbaceous border. Before planting it would be well to remove a portion of the old and probably exhausted soil to the depth of a foot; replace it with a few shovelsful of loam and decayed manure, and plant in the fresh compost. To have this gorgeous Primula in full beauty it ought, however, to be cultivated in pots, and protected by a glass screen. I have seen it in flower out of doors planted in the open border, but not with more than one tier of flowers expanded at a time. The flowers seem to suffer very much from the vicissitudes of our climate in May; under glass they are safe.

For pot culture I would recommend a compost of good turfy loam, decayed manure, and a small portion of leaf mould. During the entire period of their growth the plants should be

kept near the glass, removing the lights entirely in fine weather. The plants may be wintered in a cold frame, with the pots plunged in some light material—cocoa-nut fibre refuse is one of the best materials for this purpose—or they may be kept in a heated pit. When they are throwing up their flower-spikes give plenty of air, which is necessary to prevent the flower-stalks from being drawn up weakly.

Primula japonica is one of the most robust-growing of its race, and those who are successful in growing ordinary Primroses will find no difficulty in managing this.

The few remarks on culture which I have ventured to make may be of use to those who have not the benefit of a large experience.—J. Douglas.

WATER IN A COVERED CEMENTED TANK.

Having just had a small tank constructed for rain water, I read Mr. Fish's letter on the subject in your last number with much interest. My tank is covered up and must remain so, but the water is hard, as his letter seems to indicate that it will be. Can he say whether there is any other cure for rain water becoming hard in a brick and cement tank than that which he suggests, and which I cannot adopt—namely, making it an open tank? For instance, suppose the tank were emptied, dried, and painted over with three or four coats of paint, would that prevent the cement affecting the water?—D. Y.

"I have little faith in the painting of a cement tank when dry, so as to have the water in the tank soft. We would have more faith in a lead-lined tank. I have not sufficiently proved a suggestion made to us of having a cement tank lined with plaster of Paris. I intend experimentally to prove it again, as in some cases the plaster adhered badly, and in other cases I did not find that the quality as respects the softness of the water was improved.

As your correspondent says, there is no difficulty with an open tank—the water will be deliciously soft.

In a close tank, as one built in the circular, or egg, or any other shape, with an opening at top, covered with a stone or board, if there is an opening even from 1 to 2 inches under the covering the water will be softer. If more than an inch there should be a rim round of fine wire or perforated zinc to let the air in, and keep mice, rats, &c., out, as a few of such luckless intruders would injure the water. In closed tanks where it would not be advisable to give the air under the covering referred to—in such tanks with two filters the water will be delightfully clear and sparkling like well water, but it will be all the harder. I hardly like to say it, but it is the fact, that the more rain water is filtered through stones and gravel, &c., before it enters a close cement tank, the harder the water will be. For mere garden purposes water taken at once from roofs, &c., to a cement tank, even if shut, will be much softer than the same water taken through several filters. It may not always be so clear, but it will be soft. Such tanks with the water unfiltered will be generally soft enough, even if enclosed after the first twelvemonth. I mention this as to the filtering with some little hesitation, though quite certain myself as to the results. Be assured, that the more you filter water that goes into a cement tank the clearer it will be, but the harder also it will be. Where water from such causes is extra hard, a little quicklime or carbonate of soda will do much to soften it, but the simplest remedy is exposure in a tub or basin to the air some hours before using it. We have a tank made with cement, closed over, not cleaned out for thirty years, and the water is, after the first twelvemonth I believe, nice and soft for culinary and laundry purposes, but there are no filters. As the matter is wrung from us as it were, I say, not from theory but from practical experience, For clearness of water use filters; in cement tanks covered over, and where softness of water is an object, dispense with filters, and allow the water to clear itself by sediment.—R. F.

NOTES AND GLEANINGS.

The first part has just appeared of the long-expected "Flora of British India," by Dr. J. D. Hooker, published under the authority of the Secretary of State for India in Council. The territory included in the "Flora" is that comprised within the British territories in India (including the Malay peninsula and the Andaman Isles), together with Kashmir and Western Tibet, but excluding Affghanistan and Beluchistan, the plants of which countries are included in Boissier's "Flora Orientalis," and belong to quite another botanical region—that of Western Asia. Of the 12,000 to 14,000 species of flowering plants and Ferns belonging to British Indian botany, not a twelfth part has hitherto been brought together in any one general work on Indian plants; the description of the remainder being scattered through innumerable British and foreign journals, or contained in local floras or works on general botany; and a very large number being either very badly described, or not at all. The work is, therefore, one of considerable labour as well as importance, Dr. Hooker being assisted in it by various other botanists. There are a large number of new species described in this part; and the natural orders included in it are Ranunculaceæ, Dilleniaceæ, Magnoliaceæ, Anonaceæ, Menispermaceæ, Berberideæ, Nymphæaceæ, Papaveraceæ, Capparideæ, Resedaceæ, Bixineæ, Violaceæ, and Pittosporeæ, by Dr. Hooker and Dr. Thomson; Cruciferæ by Dr. Hooker and Dr. Anderson; Fumariaceæ by Dr. Hooker; and a part of Polygaleæ by Mr. A. W. Bennett.—(*Nature.*)

—— Low Night Temperatures.—We knew an old gardener, one of whose special proverbs was

"When frosts come in May
There's the devil to pay."

However, they have come this year, and we have not heard of any special damage. Last week we were told of thermometers down to below 32° at night in Surrey, Wiltshire, and elsewhere; but the Potato foliage was untouched. On the night of the 19th in Yorkshire it was still colder, for we have a letter from thence dated the 20th, from which we make the following extract:—"6° frost last night, but I go on bedding-out, and my plants have not suffered to speak of." Mr. Robson, writing from Linton Park, Staplehurst, on the 20th, says, "We have ice this morning as thick as a shilling."

WORK FOR THE WEEK.

KITCHEN GARDEN.

Prepare ridges for *Cucumbers* by throwing out trenches 4 feet wide and 2 feet deep in light dry soil; fill the trench with fermenting material, such as leaves and litter that have been used for covering Vine borders during winter, short grass, old tan—in fact any material that will afford a gentle heat; cover with 1 foot of the soil thrown out of the trench, make holes at the place each plant is to occupy, and put into each hole about a barrowload of fresh loam and old hotbed dung. In this compost the plants may be put; they must have hand-lights placed over them, be shaded from the noonday sun for a time, and be well attended to in regard to water, air, &c. Look after *Celery* in various stages; see that it does not suffer from want of water, and that the surface of the soil do not become hard and caked; when such is the case have it stirred up at once. *Asparagus* that has been planted this season should be mulched with Winter Spinach, which is now superseded by the spring-grown crops; give abundant waterings with liquid manure, adding 2 ozs. of common salt to every watering-pot full of the liquid. By this means plants of one year old from seed and planted in ordinary soil, will next year yield shoots 2 inches in circumference. It is, however, injudicious to cut it till the third year. Prick out abundance of the *Broccoli* and *Cabbage* tribe as they advance in the seed beds, and shade for a time; when thus treated the plants are always better than when allowed to remain in the seed bed till wanted for final transplanting. Earth-up advancing crops of *Potatoes*, and fork up the soil amongst those just making their appearance. Earth-up and stake *Peas* as they advance, and sow succession crops of esteemed varieties. Sow succession crops of *Dwarf Kidney Beans* and *Scarlet Runners*. Thin out all advancing crops as soon as they are fit; neglect in this respect frequently does great injury, the plants become weak and drawn, and never recover the ground they lose as compared with those that have been attended to in proper time.

FLOWER GARDEN.

Now is the time to establish a firm and even sward or lawn, the pride of British gardens. The roller and scythe will be in frequent request. See that all edgings hitherto neglected are put in order for the summer; do not cut-in beyond the original boundary, and keep the walks filled with gravel. Let the roller be passed frequently along the edges in order to level them down to the walk; this takes away the harshness of the outline. Proceed with filling the beds and borders; the present growing weather will assist the plants in taking hold of the soil without much attention. Stake or peg down plants

that require it as the planting proceeds, otherwise the boisterous winds will break off many things. Plant out in rich soil a good supply of Stocks and Asters for the autumn, and sow a succession of annuals for making up any vacancies which may occur, and likewise another sowing of Mignonette in pots for the rooms or for filling window boxes. I fear that the generality of Tulip exhibitions this season will be unsatisfactory, inasmuch as the weather hitherto has been so unfavourable for their development. Auriculas should now be placed on a north border; the seed will ripen there very well if the pots are well drained and set on a layer of ashes to prevent the ingress of worms; they will not be injured by the exposure. Polyanthuses require more shading than the Auricula; they are liable to the attacks of the red spider. Carnations and Picotees are growing fast, so are weeds, which must be taken from the pots as they appear. Cut over the plants which are spindling without showing increase. Do not delay in putting in the sticks to which they are to be attached. Dahlias should be planted out, and a stout stake put in; to this they must be carefully tied as they elongate. Pansies may be shaded, and not too many pods of seed allowed to ripen.

GREENHOUSE AND CONSERVATORY.

The occupants of the conservatory should participate in the advantages offered by the favourable change in the weather. Every available means of securing ventilation should be put in requisition. Soften the air by occasional sprinkling of water on the paths; liberal supplies of water must be given to the plants generally. Early Azaleas exhibiting a tendency to inequalities of growth may be stopped. If it be requisite to increase the stock of Cape Heaths, Banksias, &c., probably suitable cuttings will now be found. Manure water may be given to Pelargoniums, Calceolarias, and plants of succulent habit. Look well after young stock at this period, especially that for the winter's work. The early-sown Chinese Primroses and Cinerarias should receive high cultivation; these will bloom in October and November. Another sowing may be made shortly for spring decoration. Continue successions of Achimenes, &c., from rest stock, also Gesnera zebrina. The Chrysanthemum cuttings may be put out immediately. These will do without bottom heat if carefully managed. Choose the shortest-jointed wood. I have known them answer well propagated by suckers; the plan is to draw the suckers when about 4 inches long and insert them in a 5-inch pot without stopping them. They are then introduced to a mild bottom heat until the pots are nearly filled with roots, taken to a cooler situation, and stopped, using weak liquid manure. When they become nice bushy plants they receive a final shift at once into the blooming pots. As the time during which plants are in bloom is the only interesting period of their growth to the majority of their admirers, it is always desirable to prolong the time to which this period extends, and to allow them to be examined without subjecting visitors either to an overheated or overmoist atmosphere. For this purpose, where there is no conservatory, a suitable house should be appropriated for the more showy specimens when in flower; then the necessary shading to preserve them in perfection for as long a time as possible can be given without interfering with anything else. The plan is now adopted in most nurseries from the many advantages it presents. By adopting a similar plan the smallest gardens may possess their "show house" for displaying their stock of plants in flower. The common Mandarin and Otaheitean Oranges are recommended as valuable plants for forcing into bloom in the winter months; for the above purpose keep them rather under-potted, and pinch the young wood back so to form bushy, compact specimens.

STOVE AND ORCHIDS.

As in former calendars. Increase the amount of shading in very bright weather, and look well to watering, &c.—W. KEANE.

DOINGS OF THE LAST WEEK.

KITCHEN GARDEN.

THE rain has interfered much with work proposed, but it has enabled us to attend to many things under protection; and in ground at all heavy, what would be the use of farmer or gardener turning out either horse or man to forward operations? It would in many cases be truer economy, if nothing in-doors could be done, to give to all labour a general rest. Our wet days are generally our busiest days, only the difference is that the work is performed under glass or other roofs instead of being done in the open air.

In the course of years we have had more than conclusive evidence that, even on the narrow principle of selfishness, the caring for men, so that in wet and tempestuous weather they shall work under protection, will be the best paying in the end. There is something wrong when men are exposed in drenching weather, and are turned in to do necessary work in houses and sheds when the sun shines brightly.

Besides keeping-up successions, we have done little in the kitchen garden. Successional *sowings*, as the ground was so wet, had the seeds covered with a light sprinkling of riddlings from under the potting-benches. By such means we can sow Peas, Spinach, Turnips, Lettuces, &c., at any time. All that is required is a shallow mark for a drill, and a covering of such light, dryish material, and through it the seedlings generally come up healthy and robust, and more especially if some of the charcoal dust from charred rubbish forms part of the covering. Without entering into the theory of the thing, we are so satisfied of the value of charcoal-dust dressing, that had we time and opportunity we would char much of the rubbish we must now be content to rot and decompose.

Onions.—We mentioned hoeing among the spring-sown Onions last week, that is all they wanted beyond thinning for salads. Where such hot things not larger than stocking-needles are prized for salads, Cucumbers, &c., the seed should be sown every month from April to September. To save seedlings we often in winter place Onions in heat to make them scallions, and stripped small they become very tender, and will not be judged otherwise than as sweet young Onions. To keep-up a nice succession of large bulbs for use, we must resort to autumn-sowing in August and September. Here we have a word to say for the benefit of the inexperienced. Such sowings in autumn, though turned out well, even when thinned and let alone, will hardly bear comparison with those that have been transplanted. If left where sown, the bulbs are very apt to become thick-necked, the neck taking up much of the strength that ought to go to the symmetrical bulb. One remedy against this evil is to go along the rows early in spring and remove the earth from the plants as far as can be done without injuring the roots. This does much in the way of securing clean-swelling bulbs, instead of thick-necked ones, good enough for some purposes, but which neither cooks nor gardeners care to see too much of generally.

One great preventive against these huge thick necks is transplanting. For the benefit of those who like large fresh Onions, and who have but little room to spare, we may state that at one time we were satisfied with transplanting autumn-sown Onions in spring; but though these do well they do not furnish the requisite supply in succession. Now we find that if we sow in the middle of August and September, that it is very desirable to transplant a few rows of each of these in the autumn, and again early in spring, and thus from these sowings and transplantings we obtain three successions before the general spring-sown crop comes in. Now, such minutiæ are of little importance to the possessors of large gardens, but we think them valuable to those who want to get the most out of a small piece of ground. These successional plantings speak for themselves. An old labourer who planted ours told us the other day that it would be better to do all the transplanting in the autumn, the plants looked so strong and well. On the principle of successions we think it advisable to transplant a portion in spring as well, as the huge bulbs from autumn transplanting do not in general keep long. With all the care alluded to above, of moving the earth from autumn-sown Onions, it is not often that they will bulb so well and uniformly as those transplanted.

In transplanting Onions let the ground be properly prepared, and made rather solid on the surface, then draw out the lines for the rows of Onions. We find a distance of 5 inches in rows a foot apart a good fair distance, as thus the bulbs may be fully 4 inches in diameter. Take up the Onion plants carefully with all the roots, and plant these also carefully with a dibber or trowel firmly, but do not cover the base of the Onion—in other words, plant merely the roots without a bit of the stem, and then there will be free bulbing and not the growth of useless long necks. If the work is not done by yourself, you must see that the workman does not bury at all the neck of the Onion. Nothing should go into the ground except the roots. Attend to this, and we dare not state the diameter and circumference of the fine bulbs one may have early in the summer. As respects the Onions sown in August, transplanted or otherwise, if ever they show a seed-stalk cut it off at once, and that will tend to increase the size of the bulb.

You cannot have a good sound bulb if you allow a seed-stalk as well.

We have said this much, as from what was lately stated we have had a number of inquiries as to getting the greatest amount of Onions in little space, from those who find that Onions are something like meat and drink. Well, we say, Sow in the middle of August and the middle of September, and if you have only a few yards, transplant exactly in the mode specified in autumn, and again in spring, and you will have a fine supply before the spring-sown ones come in.

Asparagus Kale, or Ruda Kale.—Allow us to recommend this again to every occupier of a small garden. It really is almost as good as Asparagus if the shoots are taken off some 4 to 5 inches in length.

We have cleared away all our Brussels Sprouts. We still have good rows of the Scotch Cabbaging Kale and sprouts from old Cabbage stumps—very nice indeed to come in as changes with Spinach and Broccoli too far gone for the parlour; but for a late spring vegetable nothing equals this Asparagus Kale, and, gather it close as you may to-day, in three or four days there is a fresh supply. We have still some fine late Broccoli, and Cauliflower is coming on; but for tenderness and flavour now nothing will come up to a dish of the small shoots of Asparagus Kale, and wherever there is a patch of it there will be no necessity for cutting up Cabbages before they are well hearted and mature.

FRUIT GARDEN.

See what was stated in previous weeks. Trees grown as bushes and pyramids must not now be neglected. If the shoots have the terminal bud taken out, most of these shortened shoots will bristle in autumn and winter with flower-buds; and where much is wanted in little room we must encourage flower-buds instead of wood-buds, for after all, however we may love to see free growth, the fact remains, that though we can eat the fruit, we cannot masticate the finest shoots or leaves.

Strawberries.—We have had fine fruit damped last week, as alluded to by a correspondent. We had no remedy except more heat and more air in this dull wet weather. The additional air gave access to other enemies, in our case chiefly mice. We have had to change whole rows, as some pots were covered with fruit not more than half swelled. Poison and trap as you will, there is nothing to equal a cat shut up in the house. We are quite aware that many a gentleman would rather never see a Strawberry than have a cat on their premises, as they could hardly sleep with nightmare visions of rifled nests and dying and dead leverets. One thing here we may state—that cats will not go to cover much if there is a small triangular piece nipped out from each of their ears. This will catch the grass, &c., in a cover or wood, and bring the dew or damp into their ears, a thing which all cats young and old detest.

Last season we stated that our out-door Strawberries were not up to the mark, while forced ones were extra good. This season the show of bloom is extra fine out of doors, and a few seem suffering from the prolonged wet, without a ray of sunshine. We have dressed the ground between the rows with lime and soot, partly to help in the way of nourishment and to keep slugs away. A little of this dressing does much to secure the best-formed fruit at gathering-time.

ORNAMENTAL DEPARTMENT.

We could scarcely touch a bed or border, we might as well have tried to regulate a sodden morass as do anything in our heavy soil. We finished much potting; regulated, potted, and boxed bedding plants, so as to have them strong and hardy. Even our plants turned out in beds and growing at bottom, have shown no signs of upward growth for three weeks past. When once the soil in flower-beds is friable such plants will grow rapidly. Planting out now in such wet soil and cold withal, is next to labour thrown away. Generally we are not much behind as to early floral display, and one cause of this is simply that we do not plant out too early. In such cases it will often be found that the early planting of flower-beds is not exactly synonymous with early blooming and early filling of the beds.—R. F.

TRADE CATALOGUES RECEIVED.

S. Dixon & Co., 48A, Moorgate Street, London, E. C.—*Descriptive Catalogue of Chrysanthemums, Fuchsias, Geraniums, Verbenas, &c.—Descriptive Catalogue of Dahlias, Bedding Plants, &c.*

Kirk Allen, Brampton, Huntingdon.—*Spring Catalogue of Geraniums, Calceolarias, Fuchsias, Ferns, Palms, &c.*

Frères Simon-Louis, Plantières, près Metz.—*Catalogue et Prix Courant des Plantes de Serre Chaude et de Serre Froide Plantes Vivaces, &c.*

TO CORRESPONDENTS.

*** We request that no one will write privately to any of the correspondents of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely to The Editors of the Journal of Horticulture, &c.*, 171, *Fleet Street, London, E.C.*

MELONS FROM LAST YEAR'S SEED—PERILLA STOPPING (*J. W. L.*).—The Melon plants from last year's seed will answer, but we prefer plants from seed two or three years old, as they fruit more freely and do not run so much to wood. We consider April quite soon enough to sow Perilla, but, by stopping, those you have may become good plants; if they are flowering they are of little use. We should prefer plants sown now, for on a good leaf-development depends their value. The plants you send, so far as we can make out from such small crushed fragments, are—No. 1, Fabiana imbricata; No. 2 is a Diosma or Adenandra, probably ambigua.

CLIMBERS IN CONSERVATORY (*H. D.*).—We think the climbers you have sent are 1, Bignonia Tweediana, or it may be a Tecoma; and 2, Tecoma jasminoides, but to enable us to determine correctly we must have flowers.

BROMPTON STOCK SOWN IN SPRING (*Idem*).—This is a biennial, and we do not think it will flower the first year though sown early in heat, but we have no experience of this, and should advise you to plant them out. You may now sow German Ten-week Stocks in gentle heat, and they will flower in August or at the beginning of September, if pricked off when large enough encouraged as to make them strong, and well hardened-off before planting out. Do this carefully, so as to give but little check. If you could shade them for a few days after planting they will take more freely, especially if the weather be at all bright at planting time.

EVERGREEN SHRUBS UNDER ELM TREES (*J. B.*).—Next to Ash, Elms are the worst trees to plant under, as they have such gross-feeding roots, which render the ground very dry in summer. We have found the following succeed in a mixed plantation of large Elm, Beech, and Lime, planted so closely as to form a dense shade:—Evergreen and Box-leaved Privet, Spurge Laurel, Common Laurel, Tree Box, Butchers' Broom, Common Holly, Alexandrian Laurel, Cotoneaster microphylla, Common Yew, Portugal Laurel, Laurustinus, Rhododendron ponticum, Berberis Aquifolium, B. repens, and in parts not very much shaded, B. Darwinii and B. dulcis. In densely shaded places we find Aucuba succeed admirably, also the Periwinkles and Ivies—in fact, Ivies thrive best in shade, and they may be made to take the place of shrubs if trained to iron supports.

CUCUMBERS SEEDY—GREENHOUSE VINES NOT SUCCEEDING (*B. G., Blandford*).—The principal cause of seedy Cucumbers is old or slowly-grown plants or fruit. Setting the fruit or impregnating the flowers we only practise when we want seed. It is not necessary for the swelling of the fruit. We think that the removal of the male blossoms would favour the swelling of the fruit and absence of seeds in all but very old plants, in which it is not unusual for the fruit to be "club-ended." The sooner such plants are pulled up the better. Discontinue setting the fruit, and afford a bottom heat of 75° to 80°, and a top heat of 65° to 70° at night, 70 to 75° by day without sun, and 85° or 90° with sun and abundance of air. Cut the fruit ten days, and not more than a fortnight, after it begins to swell. The Vines must be in a bad condition. The border probably requires drainage. We should examine the 5 feet of border, and if the drainage is good the fault must lie in the soil beyond the 5-feet border, into which the roots have extended. In this case take out the soil there, and increase the width of the border, draining it properly; and a drain along the front of the old 5-feet border would free it of any stagnant water. We think the Vines would then thrive, and be free of mildew if the house were properly ventilated. It is useless to attempt to grow Vines in a cold wet border; your only plan, then, will be to take up the Vines and make an entirely new border, either replanting the old Vines or putting in young ones, which we consider will be preferable. Muscat of Alexandria is not suitable for a greenhouse; to ripen well it required a good heat. We make no charge for answering correspondents queries.

ORCHARD-HOUSE TREES (*W. A. H.*).—As your trees have borne no fruit there will be no necessity for watering them with liquid manure this season. They will grow freely enough without it, but we should give top-dressings of fresh compost, as advised by Mr. Rivers and Mr. Pearson. Copious syringing will be needed to prevent red spider. On keeping this and other insects under, on healthy free growth, and its thorough ripening, depend your prospects for another year.

SUCKERS OF ALOE—CACTUS PROPAGATION—APPLE AND PEAR SHOOTS PINCHING (*M. G.*).—Remove the suckers from the Aloes now, taking them off with roots, and place singly in pots that will hold them comfortably. Good, moderately rich, light loam is a suitable compost; use good drainage, and do not water until the plants are dry. We think the plant you describe is a Cereus; the pink buds may be flowers, but we rather think not. We should say they were shoots. Propagate by cuttings of the growing points, or the points of the shoots, after they become firm; take them off when from 4 to 6 inches long, and lay them on a shelf for a few days until the wound has dried; then insert them singly in small pots of very sandy soil, set them on shelves in the sun, do not water more than will be sufficient to keep the soil moist, but dry rather than moist. Now or August is a good time—either before or after the growth is complete. The Apple and Pear trees against walls should have all the shoots pinched when they have made three leaves, except the terminal shoots, or those required for extension or furnishing the wall with shoots at 1 foot apart. After the first stopping, the shoots may be stopped at every leaf of fresh growth throughout the season. The short stubby shoots or spurs, or those shoots that have a cluster of leaves, should not be interfered with, but left entire.

MRS. PINCE'S GRAPE.—Mr. T. Baines, Stock House, Bingley, writes to inform "A YORKEY," that "in October, 1869, he purchased five Mrs. Pince's Black Muscat Vines. In 1870 each ripened two or three bunches, and one five. In 1871 they ripened thirty-two bunches, and he has one bunch now

(May 14th). The Grapes are of excellent flavour. The present crop is sixty-three bunches, of which he will cut off twenty-three at least. This Grape does not acquire its full flavour till after Christmas. It is as hard as iron Two Vines of Madresfield Court have twenty-one bunches on."

SCALE ON APRICOT TWIGS (*S.*).—The semi-globose objects (half the size of a pea) of a maroon colour, are the swollen bodies of the females of the Coccus Adonidum, beneath each of which a great number of minute white eggs are to be seen, which will quickly hatch unless destroyed by hand-picking. The yellow ones are swollen females, which have not yet deposited their eggs beneath their bodies; and the small white transparent scales are the coverings of the pupæ of the winged males.—I. O. W.

AMERICAN ASPARAGUS (*H. C.*).—It probably is the common Asparagus highly cultivated. We have grown the common Asparagus to such a size that six heads weighed a pound, by supplying the beds two or three times a-week with strong liquid manure.

VIOLET-COLOURED GLASS (*J. J. Ryan*).—Write to any of the dealers in glass who advertise in our Journal, and tell them the colours of the glass you need.

RATS IN OUTHOUSES (*Elgin*).—The following is a proved and harmless mode of destroying them:—Melt hog's lard in a bottle, plunged in water heated to about 150° Fahrenheit; introduce into it half an ounce of phosphorus for every pound of lard, then add a pint of whisky; cork the bottle firmly after its contents have been heated to the above degree, taking it at the same time out of the water till the phosphorus becomes uniformly diffused, forming a milky-looking liquid. This liquid being cooled, will form a white compound of phosphorus and lard, from which the spirit spontaneously separates, and may be poured off to be used, for it merely serves to diffuse the phosphorus through the lard. This compound on being warmed very gently may be poured into a mixture of wheat flour and sugar, mixed, and then flavoured with oil of rhodium. This dough being made into pellets, lay it in rat-holes. By its luminousness in the dark it attracts the rats, and being agreeable to their noses and palates, it is readily eaten, and proves certainly fatal.—(*English Mechanic.*)

COVERING ROOF AND SIDES OF A WOODEN HOUSE (*Experientia docet*).—Cover the roof with felt, and tar that and the sides with Stockholm tar, and whilst this is sticky dust thickly both the roof and sides with the siftings of bricklayers' lime rubbish.

SEEDLING GLOXINIA (*O. G.*).—We never saw a Gloxinia that is not beautiful, and yours is not an exception, but there are many like it. We cannot name your Caladium, nor any mere florists' varieties; they are in legions, and so nearly alike that we cannot spare time to identify any specimen.

PHLOX IN POTS (*A. A. M.*).—As your plants have but one stem we should top them at 6 inches, and that will cause them to branch, but they will not flower so finely as if you were to let the one stem grow without stopping. We like them best when they have from five to a dozen stems according to the size of pot and strength of plant, thinning-out the weakest of the shoots, and so encouraging the strongest and best shoots. Give them plenty of moisture, and water them occasionally with liquid manure, but not too strong. 1 oz. of guano to a gallon of water, and strained before use, will be sufficiently powerful.

DAHLIA IMPERIALIS CULTURE (*An Amateur, Warwick*).—Your plants do not flower because you do not give them sufficient encouragement. Give them plenty of pot room, and rich light soil with good drainage, watering abundantly, but not saturating the soil; water once or twice a-week with weak liquid manure. Syringe morning and evening, and afford a light airy position. It will flower late in autumn, and to do well requires a temperature of 50°. Do not place the plants out of doors, though you may do so after May, but house the plants in September.

GRAPES SEVERELY SPOTTED (*B. G., Subscriber*).—See what we said on page 411 of our last number.

SUMMER-PRUNING GOOSEBERRY AND CURRANT BUSHES (*Minnie*).—We highly approve of your pinching the spray back to two or three leaves, but by no means slipping the shoots off, unless they come from the base or bottom of the bushes or lower parts of the branches; when they are so situated and are likely to crowd the centre of the bushes, which should always be kept open, they are better removed. We advise you to pinch back all the shoots on the branches to within two or three leaves of their base, and that throughout the summer, leaving the best-situated, if more shoots are required, and the shoots from the ends of the branches, which, however, may be stopped at the sixth leaf. The stopping of the spray will admit light and air to the spurs, and contribute to their fuller development. At the winter pruning the shoots of the current year should be cut back to within three-quarters or an inch of their origin, but the spurs should be left entire. The terminal shoots of all the branches may be pruned to 6 inches, or left longer according as size is wanted.

ASPARAGUS PLANTING (*Idem*).—It is now a good time to plant Asparagus. Take up the plants carefully, and put them in before the roots have dried. You may procure plants three years old of the nurserymen. We consider two-year plants are quite old enough. They will need to be packed, if they come any distance, so that the roots will not dry, and after having been planted they should be carefully watered if the weather is dry. They can scarcely have too much liquid manure in summer.

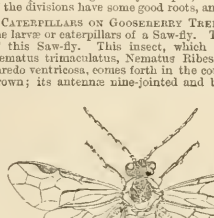
FAILURE OF PEACH TREES (*W. R. J.*).—As you have planted your trees in the same soil out of doors as you have in your house, it cannot be anything in the soil that is the cause of failure. Are the trees free from red spider and aphis? If either of these pests is allowed much license in summer and autumn the wood does not ripen well, and in consequence of this much of it dies off in winter and spring. We do not think the climate with you can exercise any unfavourable influence, except that some seasons are more favourable to the ripening of the wood and fruit than others Last season was a bad one.

PEAR TREES DISEASED (*P. M.*).—We discovered several thrips on the specimens sent. We would syringe the trees with a decoction of 2 ozs. of soft soap and 2 ozs. of tobacco to the gallon of water. In winter we would mix a double quantity of tobacco and soap to the gallon, and add to it 8 ozs. of flowers of sulphur. With this we would dress the trees.

TREE FERN TREATMENT (*An Old Subscriber*).—Dicksonia squarrosa and Cyathea dealbata will succeed in a greenhouse or conservatory temperature. Water abundantly at the roots, and keep the trunks always moist by frequently sprinkling them from a syringe. Two or three times a-day will be sufficient. Do not pour water down the stem, though that will do if it be kept from the centre or heart of the plants, and you may syringe them overhead morning and evening. They should have shade from bright sun, and we should not advise you to place them out of doors in summer, unless you can command a very sheltered position. They will thrive much better under glass.

MYOSOTIS—LETTUCE—PRUNING EVERGREENS (*Doris*).—We advise you to sow more seed of Myosotis sylvatica, and grow the seedlings so as to have good plants by autumn. The old plants are not so free-growing nor so good as young plants. Sow the seed at once. All the Year Round is a good Lettuce, with a firm, crisp, close heart; and Tom Thumb a close-hearted and crisp little Lettuce, good for serving whole or in halves. Probably the best summer Cabbage Lettuce is Neapolitan. Now is a good time to cut evergreens into shape, but it ought not to be longer delayed. Tritomas may now be divided, but we prefer doing so early in April, or in autumn after flowering. Let each of the divisions have some good roots, and water if the weather be at all dry.

CATERPILLARS ON GOOSEBERRY TREES (*H. G.*).—The "green grubs" are the larvæ or caterpillars of a Saw-fly. The cross lines show the natural size of this Saw-fly. This insect, which has been named by entomologists Nematus trimaculatus, Nematus Ribesii, Tenthredo Grossulariæ, and Tenthredo ventricosa, comes forth in the course of April. Its body is yellowish-brown; its antennæ nine-jointed and brown; the crown of the head, eyes, three large spots divided by a light line on the back and a large spot on the breast, are all black; the body, or belly, is orange; the wings reflect the colours of the rainbow; and their nerves, with a large spot on the front edge of the fore wings, are brown; the legs are brown also. The female lays her eggs along the principal nerves on the underside of the Gooseberry leaves, and less frequently on those of the Red and White Currant. The eggs are hatched within ten days; and the arrival of the caterpillars may be known from the leaves being eaten through into numerous small holes. These caterpillars are pale green, with one ring at each end yellow; the head, tail, feet, and rows of spots on their sides being black. Successional broods are hatched from the beginning of May until October, but it is during May and June that they are usually most abundant and destructive. Some of these descend into the earth from cocoons, and bring forth fresh flies at the end of the summer; but the later broods of caterpillars remain in their cocoons throughout the winter, and give birth to the earliest spring swarm of Saw-flies. You may kill the caterpillars by dusting over them fresh white hellebore powder, which you may obtain of a chemist; and you may prevent their recurrence by covering the surface of the soil around the bushes 2 inches deep with spent tanners' bark.



Gooseberry Saw-fly.

SPECIMENS FOR HORTICULTURAL SHOWS (*F. G.*).—To answer your query fully would occupy space needlessly. Reference to reports of exhibitions in former years at other places, held at the time you propose (which you do not state), would be a safe guide. Any specific answer to a query we will readily answer.

ROSES UNDER VINES (*G. W. L.*).—Keep them well watered, and give weak liquid manure once a-week. Syringe them frequently. To remove the mildew now on them, dust with flowers of sulphur thoroughly; let the sulphur remain on two days, then syringe. Repeat this treatment until the mildew disappears.

DESTROYING SLUGS (*A. K. Lock*).—If you were to dust with fresh lime two or three times a-week when the weather is moist, continuing this, say, for a season, we have no doubt you would subdue them. The dressing of lime and soot has not been effectual because not long enough continued. It might destroy one generation of slugs, but a numerous progeny would be left, and you will need to be ready for them when they appear. Besides, your land will be much benefited by the dressing of lime, and the pointing-in with a fork will tend to bring it to contact with the slugs as well as to loosen the surface. Where forking is impracticable, stirring the surface with a hoe will frequently answer. The lime is best applied in moist weather, when just slacked and cool enough to handle, at dusk or early in the morning. We do not know anything else that will answer except paring off the surface and burning it.

SETTING VANILLA FLOWERS (*Linda*).—It would be well if you were to fertilise the flowers; the probability of their setting would be greater. You must be able to command a good heat, and to keep a dry well-ventilated atmosphere. The stigma and anther are in the same flower, the pollen powdery or cohering in small granules, the anther terminal and opening by a lid. It is a difficult process to fertilise Orchids, but we trust you will meet with success, of which we shall be glad to hear.

WOODLICE IN OLD WALLS (*J. A.*).—The mode referred to of destroying woodlice is anything but like placing salt on a bird's tail! On such an old wall so infested as yours, we would have engined them freely with water at 200°, when the buds were dormant. Even now we would syringe or engine the walls freely, which would cause the woodlice, which hate water, to come down to the bottom of the wall. Here place a little dry hay, or small pots filled with dry hay or moss, with a piece of boiled potato or beetroot in each, and examine early in the morning under the hay. You may use scalding water, and the pots and even hollowed-out potatoes and beetroot, you may empty into boiling water; so we used to advocate. Engining and syringing the wall, with such trapping, &c., will soon thin them, but the best remedy is to fresh point the wall.

INSECTS ATTACKING FRUIT-TREE BUDS (*R. N.*).—The small shoots of different trees sent by post arrived perfectly smashed. All we can say is that they are attacked by different kinds of minute caterpillars (each tree nourishing several distinct kinds), and which will turn to minute moths. The only way to destroy them at the present time is carefully to open each infested bud and kill the caterpillar. We know of no fluid which will kill them without injuring the trees.—I. O. W.

INSECTS DESTROYING WHEAT PLANTS (*J. K.*).—The grubs sent are the larvæ of the common Tipula oleracea, or Daddy-longlegs. Repeated rollings with Crosskill's clod-crusher, or watering with salt or nitrate of soda, or dust-

ing the ground with soot, sea sand, and salt, have been recommended, but a better plan is to employ children to catch and destroy the Daddy-longlegs when they appear.—I. O. W.

NAMES OF PLANTS (*T. A.*).—Prunus Padus, the Bird Cherry. (*G. P., jun.*). 1 and 2, Two forms of Nephrolepis cordifolia; 3, Erica versatilis (Thunb); 4, Erica, near cerinthoides; 5, Callistemon lanceolatus (*D. C.*); 6, Mespilus grandiflora. (*Inquirer*).—Polypodium (Campyloneuron) angustifolium (Swz.)

POULTRY, BEE, AND PIGEON CHRONICLE.

INCREASING EGG-PRODUCTION.

REFERRING more particularly to that portion of Mr. Wright's notes which deals with the possibility of an increased production of eggs, by a system of careful and judicious breeding—having this object in view I can confirm, from the results of actual experience, the soundness of his opinions.

Presuming that I am the friend of whom Mr. Wright speaks as possessing the Brahma pullet which laid such a remarkable number of eggs within the twelvemonth, I can add to the testimony with which it was my pleasure to furnish him, that since then another of her progeny has manifested the same desirable characteristics, and has been laying during this year so plentifully as almost to excel her parent in this respect, though, like her also, she is valueless as an exhibition bird. This disposition to lay abundantly, however, I have this year found not to be confined to birds inferior in form and feather. A handsome Brahma pullet, one of a brood hatched from a sitting of eggs obtained from my friend Mr. Wright, has demonstrated the possession of equal productive power, by a course of continuous—almost daily—laying, during the whole of this year up to the present time, such as could have scarcely been expected even by the most sanguine admirer of this favourite description of fowl. She has occasionally manifested a tendency to broodiness by the usual clucking, and a little longer sitting on the nest, but it has soon passed away, and with no diminution of her daily contribution to the egg-basket. I hope, by carefully following out in breeding the line thus indicated, to obtain a race of Brahmas possessing the happy combination of qualities which combine in an essential degree the ornamental with the useful; and I am sure that Mr. Wright, to whom I am indebted for many a friendly "wrinkle," is doing a good service in bringing so prominently before your readers a question of so much importance in these days, when the abundance of production, either of flesh or eggs, or both, is a matter of no small moment to many who seek, by the aid of a poultry yard, to reduce their demand on their butcher.—BRAHMA.

HOME PRODUCTION OF EGGS AND POULTRY.

(*Continued from page* 414.)

WE must now come to the more important part of this consideration, and which is the comparative question of cost of keeping and return that may be realised by their produce; for it is upon this head the whole question turns, which is the "home producing of eggs and poultry in a commercial point of view;" and unless it can be satisfactorily shown that fowls properly cared for are capable of returning a profit commensurate with the cost and attention bestowed upon them, it will indeed be useless to attempt to encourage the more general keeping of poultry by our struggling population, who can only afford to consider the subject in its pecuniary sense. However true the cry may be "Poultry don't pay us," there is one thing quite certain, which is, that they do pay our immediate neighbours, who not only produce sufficient eggs and poultry for their own enormous demand, but a surplus sufficient to meet our pressing wants. It has been said, by way of excusing ourselves, that the French, Dutch, and Germans have the advantage of climate over us, and that they can produce poultry and eggs at a profit when we cannot. This, however, is mere assertion, and is not borne out by the experience of those who have resided in those countries; and I myself, in visiting Holland and Germany, have quite failed to see that climate has much, if anything, to say to the matter. The true secret of the success of our neighbours lies rather in the fact of their understanding more about the management of poultry than we do, and paying far more attention to the feeding and breeding, and generally in the care and attention they bestow upon their stock. Fowls are also far more generally kept by the country people, and in far greater numbers, and the breed is generally far superior to our common fowl, and not allowed to degenerate to the same extent.

We will now consider in detail what is that necessary treatment and management necessary to enable the poultry-keeper to realise the largest profits this valuable bird is capable of returning; but before doing this I will, by way of contrast, just touch upon the treatment that has been very generally adopted by ourselves during the past two hundred years by the bulk of the farmers and cottagers in this country. There will, I think, then be little difficulty in understanding why the cry has arisen far and wide that fowls and poultry do not pay. With twenty millions of mouths to feed, and depending as we do on foreign supply for one-half the food we consume, we cannot afford to keep fowls at a loss, and they, like everything else in this matter-of-fact age, will have to stand the test of "Does it pay?" and it will stand or fall by the public verdict. Whatever may be said to the contrary by those who cling to old customs and ideas, it is undeniable that our old stock of poultry has degenerated into a small, unprofitable mongrel, rather tolerated upon the farm than cared for as a source of profit. I will not go so far as to say that our poultry has so degenerated as to be necessarily unprofitable; for I am of opinion that even our commonest mongrel breed, if properly treated, will return a profit; but what I do say is, that degeneration of our breeds, coupled with imperfect housing and protection, insufficiency of food, and want of general care and attention, has made them wholly unprofitable stock; hence the cry has spread far and wide that poultry will never be made to pay. There are certain essential rules that must be practised to make fowls profitable. The first is to keep your stock young, and clear off your birds at that age at which they leave the largest profit. Secondly, to hatch your chickens as early in the spring as possible, so as to give them the advantage of the entire summer, to hasten them to lay in maturity, and so obtain as early a supply of eggs as possible, and at a season when they command the highest price. Thirdly, to keep a breed of fowls that is hardy and comes early to maturity, easily fattened for the table, and a precocious and prolific egg-layer. Fourthly, comfortable housing, together with a regular supply of sufficient food to keep them in laying condition.

I think most will agree with me that the observance of these essential rules is the exception, and not the rule, among the general run of poultry-keepers. Fowls of all sizes, breeds, and ages are to be seen scampering about the farmsteads here and there, picking up their living as best they can; roosting about the trees and farm-buildings where they choose; making nests and laying about the premises here and there, and many of the few eggs laid being lost or stolen. Chickens are hatched at all times throughout the summer—late rather than early—and few if any eggs are consequently produced during the winter months, the season when the eggs are most valuable, commanding the highest price. A minimum of eggs is only produced, and these during the spring months and at harvest time, when food is most abundant, and when eggs are most plentiful in the market, and only command the lowest price. It is estimated that our common mixed breed or barndoor fowls so treated will not produce more than fifty-five to sixty eggs in the twelve months, and these produced at a time of year when eggs seldom command a higher price than 8*d.* per dozen, or a total annual return from each bird of 3*s.* 4*d.* Now, if we deduct from this the value of the food consumed, and which it has gathered for itself, we cannot possibly put this at less than one halfpenny per week per bird, or a total of 2*s.* 1*d.* for the twelve months, which, deducted from the 3*s.* 4*d.*, leaves the miserable return of 1*s.* 3*d.* to cover cost of rearing, attendance, casualties, &c. Their manure or droppings is invariably wasted by the birds roosting about the farm-buildings, or, if confined to a proper henroost, their manure is seldom or ever collected, or made use of and turned to a profitable account. With management such as I have described it is hardly to be wondered at that fowls are considered unprofitable. Very little, if any, better or more profitable result is obtained by rearing chickens for market purposes. Chickens are, as a rule, hatched and reared at a season when there is a glut in the market, and command a correspondingly low price, and owing to their comparatively small size and half-fatted condition, the price realised is such as to leave little or no profit to compensate for the cost of food and attention that has been bestowed upon them. As I said before, it is essential in rearing fowls for market purposes to hatch your birds at a season when the market will not be overstocked, and to keep a breed of birds for this purpose that shall combine size and weight with early maturity and readiness to fatten. As a rule, it cannot be denied that the farmer's poultry yard does not receive the same care and attention that is bestowed upon other farm stock, and yet there is certainly no stock kept that will bring in a larger or more immediate return than poultry, managed as it should be. Fowls are, the greater part of the year, left to themselves to live as best they can; or if fed, insufficiently fed, and only upon refuse corn. At one season of the year—harvest time—there is a superabundance, and the rest of the year a scarcity, and not sufficient to enable them to maintain themselves in a profitable condition.

I will now direct your attention to a simple, inexpensive, and rational system of poultry management, such as may be practised by all, and one that will not fail to return a splendid profit from this most profitable branch of husbandry, practised as it should be; and I shall conclude by showing the national importance, in a commercial point of view, of producing the five hundred millions of eggs we now import. I will illustrate the profitable management of a small poultry-yard by describing that which I

see practised at an imaginary model farm, where fowls are kept as they should be, and made to return a clear annual profit averaging 10s. to 12s. per bird, or a total annual profit of £37 from sixty laying hens and an equal number of fatted chickens. I visit this farm early in November, and I find a fine healthy stock of Brahma-Dorkings, Houdans, and Silver-spangled Hamburghs. I am taken to the hen-house, which I find to be a simple structure, built in a sheltered situation facing the south-east; it measures 8 feet long by 4 feet wide and 7 feet high; the perches are all placed at a uniform height of 3 feet from the ground, and the nests are arranged at one end in two tiers, one directly over the other; one row on the ground for the sitting hens, and the smaller nests directly over them for the laying hens. The building is perfectly dry and free from damp, airy, well ventilated at the top, and rather light; the floor is asphalt, to prevent the damp rising from the ground. At the time I visited the yard, early in November, the pullets hatched during March were commencing to lay, to replace the older hens hatched the year previous after they have done laying. These are now being fattened and killed off at the age of nineteen months. The pullets continue to lay off and on through the coming winter and following summer, laying an average of 180 eggs per bird between this time and the following autumn, at which time they in their turn are killed off to make room for that year's succession of pullets, then commencing to lay. These eggs, one-half of which are produced during the winter months, and fetch 15*d.* per dozen, and in the summer 9*d.* per dozen, realise a total of 15*s.* per bird, and each one fatted and disposed of in autumn at the age of nineteen months will realise 2*s.* at 4*d.* per lb., their average weight exceeding 6 lbs.; this gives a total of 17*s.* as the return from each laying hen killed at the age of nineteen months, exclusive of the value of their manure made during the time. Some few are allowed to live another year, and are killed twelve months later, as these older birds make the best brood mothers, and lay an increased number of eggs the second summer; and in cases where poultry-keepers are unsuccessful in rearing chickens, and have not the necessary accommodation for doing this, they will find it to their advantage to kill off their hens at the close of their second laying season instead of the first.

(To be continued.)

ACCRINGTON POULTRY SHOW.

The sixteenth annual Show took place on the 16th inst. The number of entries considerably exceeded that of any previous meeting, and the quality and condition of the birds were surprising for the height of the breeding season, and the time when the plumage begins to fail. The Show was very extensive in every department, and the number of visitors greater than ever before known in this locality.

The first class on the list was for single *Game* cocks of any colour, but with the exception of the cup-winner, which was a Brown Red, there were no birds of striking merit. Most of the single Game hens were broody, but there were some good birds; the first and second being Brown, and the third Black Red. The next class was for single Game cocks shown by exhibitors residing within three miles of Accrington, and Brown Reds were first and third, and Duckwing second. Among Red Game cocks and hens some were very good. The prizes went to Brown Reds. In the Variety class for Game the first was a very good pen of Piles, and the second and third Duckwings. Although there were five classes devoted to Game, not one really first-rate Black Red cock was shown.

Dorkings were all coloured, and of fair quality. The first and second-prize pens were very large. Buff *Cochins* were very good, also the Partridge, and the competition rather close. The first-prize *Spanish* were unusually fine in face and wattles; the second good in all points, except that the cock showed a little the want of bleaching, and the third-prize pen contained an extraordinary old hen, which, however, has seen the best of her days. *Brahmas* were also good, and the prizes closely contested.

Five classes were devoted to *Hamburghs*. Golden-pencilled took the first position. Only the first-prize pen was of high merit. Silver-pencilled were shown in beautiful condition, and the competition was close. The Golden-spangled won the cup from the rest, the cup-winners being about perfect. Silver-spangled were also good, the first and second-prize pens being pretty evenly balanced. Black Hamburghs were also good. Very few of the birds had the objectionable appearance of the Spanish cross, and yet retained both the size and shape of the true Hamburgh fowl. The *French Fowls* were fairly represented; Crève-Cœurs were first and third, Houdans second. *Polands* were very fine; the first and third were Gold, and the second Silver.

In the class for Any other Variety, first and second came unusually fine Malays, and third Sultans.

The Selling class was very large, although some of the specimens were poor. The winners were cheap; the first being Partridge Cochins, the second Black (White-crested) Polands, and the third Spanish.

Game *Bantams* were alone a show, there being eighty-two entries. In single cocks the winners were all Black Reds. All three were very good, and the run for position very close. Many pens were noticed. Of Game Bantam hens the first and second-prize pairs were as nearly perfect as possible, and very nearly balanced, both being Black Reds; the third-prize birds were Piles. Six single cocks were shown in the local class, and some of the birds would have stood well in the general class; the first-prize cock was Black Red, and very good in all points. The hen in the first-prize pair of Black Reds was perhaps one of the most perfect Game fowls in the Show, and the others were also good. In the next class Piles were first and second, the cock in the latter pen being almost perfect; third also Pile. In Bantams of Any variety except Game the first were a grand pair of Blacks, the second Pekin, and the third White.

Turkeys and *Geese* were very large, and in capital order; but the Aylesbury and Rouen *Ducks* were quite shabby. The first prize for ornamental Ducks were Ruddy Shell, the second Viduada Whistlers, and the third Bahamas. White Mandarins and Carolinas were commended.

The entries of *Pigeons* were good in all classes, and the birds were as a rule in good order. Carrier cocks were first; a Black being placed first, and a Dun second; and the same colours won in the class for hens; that in the first-prize pen was very good in eye and beak-wattle. In Tumblers both winning pens were Almonds. White Barbs were first in their class, and Blacks second; and in Owls the winners were White and Blue foreign birds. The first-prize Pouters were Blue of great size, and the second Whites of capital form. The winning Fantails were very small and neat, and the highly commended birds were also neat. The first-prize Turbits were Blue, as good as could be, and the second Silver. Blues, of good properties, were first in Dragoons, but the Silvers in the second-prize pen were rather light in form. Both pairs of Trumpeters were Mottles, and of good quality. In Jacobins the first-prize Reds were very good in hood and chain, and there were several good pens in the class which were noticed. Nuns were poor; but the Antwerps, as to quality, were good. Magpies came last, and Reds were first and Yellows second. There was no Variety class, but we should strongly recommend one to be introduced in future schedules.

There was also a fair show of *Rabbits*. Lop-eared of any sex were first on the list. In this class a Sooty Fawn buck of good general qualities, ears 22½ by 5 inches was first, and a Fawn-and-White doe, 22 by 4½ was second. The measurements of the highly commended pens were 22 by 4¼, 21 by 4¾, and 21 by 4½. Angoras were good in quality of fur, the first especially so. Himalayas were a very good lot, and a third prize was awarded. The Silver-Greys were all that can be desired, the winners being thoroughly good in colour.

Game.—*Cock.*—Cup and 2, J. Fletcher, Stonecliough. 3, J. Oldfield, Bradford. *Hen.*—1, G. F. Ward, *hc*, C. W. Brierley, Middleton; W. Watson, Aulegde. *Hen.*—1, G. F. Ward, Sproaton Wood. 2, C. W. Brierley. 3, B. Bee, Goosnargh. *hc*, W. Bearpark, Ainberby Steeple.

Game (Within three miles of Accrington).—*Cock.*—1 and 2, Morris & Woods, Accrington. 3, H. Worsley. *c*, Morris & Woods; A. Sutherland, Accrington.

Game (Black or Brown Reds).—1 and 2, C. W. Brierley. 3, W. Watson. *hc*, W. Perrin, Nantwich; J. Spencer, Clayton.

Game (Any other variety).—1, C. W. Brierley. 2, J. Fle'cher. 3, G. P. Tricker, Fakenham.

Dorkings.—1, J. White. 2, W. Harvey, Sheffield. 3, J. Stott. *hc*, W. Morfitt, Goole.

Cochins (Buff or Cinnamon).—1, 3, and *hc*, W. A. Taylor, Manchester. 2, A. Bamford, Middleton.

Cochins (Any other variety).—1 and *hc*, W. A. Taylor. 2, C. W. Brierley. 3, J. White.

Spanish (Black).—1, W. Leeming. 2, J. Powell, Bradford. 3, C. W. Brierley. *hc*, C. W. Brierley; H. Wilkinson.

Brahmas.—1 and 2, H. Lacy, Hebden Bridge. 3, T. F. Ansdell, St. Helen's. *hc*, E. Leech, Rochdale.

Hamburghs (Golden-pencilled).—1, H. Beldon, Bingley. 2, D. Lord, Stacksteads, Manchester. 3, W. Fawcett, Baildon.

Hamburghs (Silver-pencilled).—1 and 3, J. Webster, Kelbrook, Colne. 2, H. Beldon. *hc*, D. Lord; H. & A. Gill, Crawshawbooth.

Hamburghs (Golden-spangled).—1 and Cup, G. & J. Duckworth. 2, J. Newton, Silsden. 3, N. Marlor, Denton. *hc*, H. Beldon; D. Lord; J. Buckley. *c*, J. Buckley.

Hamburghs (Silver-spangled).—1, J. Fielding. 2, H. Beldon. 3, Ashton and Booth, Broadbottom, Mottram. *hc*, J. Fielding; Ashton & Booth.

Hamburghs (Black).—1, J. Moore. 2, H. Boyle. 3, D. Lord. *hc*, C. Sedgwick, Keighley; J. Rothwell, Tottington, Bury; W. Preston, Bingley; N. Marlor. *c*, Stott & Booth.

French Fowls.—1, Miss J. Leathes, Fakenham. 2, J. D. Ashworth, Maraden Heights. 3, G. W. Hibbert, Godley.

Polands.—1 and 2, H. Beldon. 3, W. Harvey. *hc*, T. Wakefield.

Game Bantams.—*Cock.*—1, F. S. Robinson. 2, W. F. Addle, Fulwood. 3, J. Oldfield, Bradford. *hc*, W. H. Gale, Aigburth; G. Noble; H. F. Nicholson; G. Hall, Kendal; T. Sharples, Rawtenstall. *c*, G. F. Ward, Sunderland.

Game Bantams.—*Hens.*—1, G. Hall. 2, T. Sharples. 3, T. Aspen, Church. *hc*, J. R. Yates, Prestwich.

Game Bantams (Within three miles of Accrington).—*Cock.*—1, C. Furness, Accrington. 2, G. & J. Anderton, Accrington. 3 and *c*, J. Woods, Accrington.

Game Bantams (Black Reds).—1, T. Sharples. 2, G. Maples, jun., Waverlree. 3, F. S. Robinson. *hc*, T. Barker.

Game Bantams (Any colour).—1, G. F. Ward. 2, T. Haworth. 3, W. F. Entwisle, Westfield, Cleckheaton. *hc*, G. Noble; T. Sharples. *c*, T. Barker.

Bantams (any variety except Game).—1 and 3, R. H. Ashton. 2, T. Waddington. *hc*, T. H. Pickles, Mytholmroyd; W. A. Taylor; E. Walton.

Turkeys.—1, H. Crossley. 2, E. Leech. 3, J. Houlker. *hc*, M. Kew, Market Overton.

Geese.—1, E. Leech. 2, J. Houlker. 3, W. H. Butcher, Preston.

Ducks (Aylesbury).—1, J. Hedges. 2, E. Leech. 3, J. Heap.

Ducks (Rouen).—1 and *hc*, E. Leech. 2, J. Houlker. 3, L. H. Ricketts, Barnwell. *c*, T. Wakefield; T. H. Spawforth.

Ducks (any other variety).—1 and 3, W. Binns (Bahama and Ruddy Shell). 2 and *hc*, H. B. Smith, Broughton, Preston (3).

ANY OTHER VARIETY.—1, Rev. A. G. Brooke, Shrawardine (Ma'ay). 2, Furness and Sudall (Malay). 3, J. F. Loversidge, Newark. *c*, G. & J. Anderton (Whitel.

SELLING CLASS.—1, H. Beldon. 2, T. Wakefield, Golbourne. 3, H. Wilkinson. *hc*, J. Leeming; S. Buckley, Healey, Rochdale; H. Frankland, Church; J. Howkess. *c*, W. A. Burnell, Southwell; H. B. Smith, Fulwood; W. Fawcett.

ANY VARIETY EXCEPT GAME AND GAME BANTAMS (Within three miles of Accrington).—1, C. H. Wood. 2, W. & T. Holt. 3, G. & J. Duckworth.

PIGEONS.

CARRIERS.—*Cock.*—1, T. Waddington. 2 and *hc*, E. Horner, Harewood. *Hen.*—1 and 2, E. Horner. *hc*, E. C. Stretch, Ormskirk; W. Harvey.

TUMBLERS.—1, E. Horner. 2 and *hc*, W. Harvey.

BARBS.—1, W. Harvey. 2, E. Horner. *hc*, J. C. Renshaw, Littleborough; A. Justice, Salford.

OWLS.—1, T. Waddington, Feniscowles, Blackburn. 2, E. Horner, Harewood. *hc*, J. Holt.

POUTERS OR CROPPERS.—1 and *hc*, E. Horner. 2, W. Harvey. *c*, T. Waddington (2).

FANTAILS.—1, J. F. Loversidge. 2, E. Horner. *hc*, E. Horner; H. Yardley.

TURBITS.—1, H. G. Poole. 2, L. H. Ricketts. *hc*, S. Durham, Littleborough; W. Kitchen.

DRAGOONS.—1, T. Waddington. 2, M. Hackforth. *hc*, F. Graham; W. Sefton (2).

TRUMPETERS.—1 and 2, E. Horner. *hc*, W. Kitchen (2); W. Harvey.

JACOBINS.—1 and 2, E. Horner. *hc*, T. Waddington (2); W. Kitchen.

NUNS.—1, W. Sutcliffe, Mytholmroyd. 2, J. B. Bowdon.

ANTWERPS.—1, A. Justice. 2, E. Horner. *hc*, R. Brierley, Fishpool, Bury (2); W. F. Entwisle.

MAGPIES.—1 and 2, E. Horner. *hc*, W. Kitchea, Feniscowles, Blackburn.

RABBITS.

SPANISH.—1 and 2, T. C. & H. Lord. *hc*, J. Irving, Blackburn (2); A. H. Easten.

ANGORA.—1, J. Baron. 2, A. H. Easten, Hull. *hc*, J. Irving. *c*, J. Boyle, jun.

HIMALAYAN.—1 and 3, S. Ball, Bradford. 2 and *c*, J. Boyle, jun. *hc*, J. Houlker; A. H. Easten.

SILVER-GREY.—1, S. G. Hudson, Hull. 2, J. Irving. *hc*, G. Hardman, Rawtenstall (2); S. G. Hudson; J. Boyle, jun.

SELLING CLASS.—1, J. Boyle, jun. 2, S. G. Hudson. *hc*, J. Simpson, Accrington; J. Boyle, jun., Blackburn.

JUDGES.—*Poultry:* Messrs. Teebay and Hutton. *Pigeons:* Mr. Charlton. *Rabbits:* Messrs. Teebay and Hutton.

BEDLINGTON POULTRY SHOW.

THE eighth annual Meeting of this Society was held on Whit-Monday and Tuesday, and on account of the favourable change of weather, combined with nearly four hundred entries, proved a great success. Capital accommodation had, however, been provided had wet occurred, the tents under which the birds were shown being large and commodious.

Of the *Dorkings*, except the winning pens little can be said, but the class for *Cochins* was extraordinarily good; the first and third prizes went to Buffs, the second to a first-rate pen of White. In the *Brahmas* want of good condition was a prevailing feature of the class, the best pen of the whole having to be thrown out entirely, as the cock had a very deeply ulcerated hock, which must have caused the fowl excessive pain: a bird in so fearful a state should not have been exhibited. The *Spanish* fowls mustered very strongly, and in fact, both as to numbers and good quality, have rarely been equalled at any show. *Polish* were a very limited entry, but of the highest merit. The *Game* fowls, though many of them proved to be of the best strains, mostly lacked the hard feather and condition necessary to perfect exhibition birds, no doubt the very changeable character of the present spring being adverse to excellence of plumage. The *Hamburghs* were, as might be anticipated, of the most perfect character; Silver-spangled were the winners of the Hamburgh silver cup. In the *Bantams*, the Black Red Game and the Black Bantams were the most noteworthy breeds shown. The *Dueks* were not so good as could have been fairly expected. Of the fancy water fowls there were, however, good entries.

The *Pigeons* throughout were among the most praiseworthy portions of the Show, the names of the winners being a good guarantee as to excellence. A very grand specimen of the Golden Eagle was on view by the kind permission of the owner, the Rev. J. S. Hind, Vicar of Cramlington.

(From a Correspondent.)

THIS Society held its eighth annual Show on the 20th and 21st inst., but its taking place during the breeding season is a great drawback to this Show. Ninety-one pens of *Pigeons* were, however, shown, and with few exceptions were all good, proved by the splendid birds of Mr. W. B. Van Haansbergen being unplaced in no fewer than five classes.

For Carriers Mr. R. Daniels, Belle Vue, Sunderland, took the cup and first prize with a splendid Black cock, a grand bird. This bird some little time ago cost nearly £20. The second-prize bird we thought out of place, and much preferred pen 251 exhibited by Messrs. Thompson & Simpson, of Wideopen (fanciers of the old school). In Tumblers, any variety, R. Daniels stood first and second with a pair of his best birds, they being so good that comment from our pen would be useless, other birds in this class being very poor indeed. Pouters, only six pens, and pen 266 should have most decidedly had the first prize instead of being second, this bird being much superior in length and limb. Owls had thirteen entries, and all very poor, except pen 275, which was unnoticed. Turbits were a strong class and unusually good. In this class our ideas again differed from those of the Judge, we much preferred pens 288 and 289 to the first-prize bird. Barbs were all very good, but Mr. W. B. Van Haansbergen's well-known old Black warrior only obtained the second honours, but he richly deserved the place of Mr. Orange's bird. Jacobins were a small class, but of the highest standard, R. Daniels' White cock obtaining the first prize over Mr. Haansbergen's celebrated and well-known Whites and Blacks. In Fantails Mr. Yardley carried off the first prize, and Mr. Walker, of Newark, the second. The Variety class was strong; the two pens containing White Dragoons and Yellow Dragoons, No. 325 and 326, were undoubtedly the best two pens shown, and richly merited the honours of first and second prizes, which they did not receive. The Selling Class contained several good birds, and the prizes were rightly awarded. The birds were shown singly in clean roomy pens from the Newcastle Ornithological Society.—BEDLINGTON TERRIER.

DOREINGS.—1 and 2, J. White, Warlaby Northallerton. 3, T. Briden, Conondley, Leede. *c*, Countess of Tankerville, Chillingham Castle; W. Swaun, Redlington.

COCHINS.—1, H. C. & W. J. Mason, Drighlington, Leeds. 2, J. Railton. 3, A. Bamford. *hc*, G. H. Proctor (2); R. Hine.

BRAHMA POOTRAS.—1, T. F. Anedell. 2, W. Swann. 3, R. Shield.

SPANISH.—Cup and 1, H. Beldon. 2, Pickering & Duggleby. 3, W. Jaggs. *c*, H. Wilkinson; G. Holmes.

POLISH.—Cup, 1, and 2, H. Beldon. 3, Parsons & Wilson.

BARNDOOR FOWLS (Cross-bred).—1, F. E. Schofield. 2, W. H. Young.

ANY OTHER DISTINCT VARIETY EXCEPT BANTAMS.—1, H. Beldon. 2, Mrs. Cross (Crève-Cœur). 3, Rev. J. G. Milner (Hondans).

GAME (Any variety).—1, J. Brough (Black Red). 2, J. Bell. 3, E. Arkroyd. *c*, J. Brown & Son.

GAME (Black-breasted and other Reds).—Cup and 1, E. Arkroyd. 2, T. & J. Robson. 3, J. Brough.

GAME (Duckwings and other Greys).—1, E. K. Arkroyd. 2, T. & J. Robson. 3, D. Hepley.

GAME (Any other variety).—1, J. Brough (Lemon Piles). 2 and 3, W. Drysdale.

HAMBURGHS (Golden-spangled).—1, G. Holmes. 2, G. Holmes; H. Beldon.

HAMBURGHS (Silver-spangled).—Cup and 1, H. Beldon. 2, Ashton & Heath, 3, G. Johnston.

HAMBURGHS (Golden-pencilled).—1, H. Beldon. 2, Miss Elliott. 3, Countess of Tankerville.

HAMBURGHS (Silver-pencilled).—1 and 2, H. Beldon. 3, H. & A. Gill.

BANTAMS (Any variety).—Cup and 1, G. Bell. 2, J. Rumford (Game). 3, J. Barlow. *c*, J. Fairless (Black Red Game); W. Gray & H. Pickering (Brown Red).

GAME BANTAMS (Black-breasted and other Reds).—1, Reed & Walker. 2, J. Rumford. 3, W. G. Furdon. *c*, W. Gray & H. Pickering; R. Youll.

GAME BANTAMS (Any other variety).—1, W. Gray & H. Pickering (Red Piles). 2, T. Reavely. 3, Pickering & Duggleby.

BANTAMS (Any variety except Game).—1, Pickering & Duggleby. 2, E. H. Ashton (Black). 3, W. G. Furdon (Black Rose-comb). *c*, H. H. Taylor (Black Rose-combs).

DUCKS (Aylesbury).—1 and 2, Miss F. Wilson. 3, Countess of Tankerville.

DUCKS (Rouen).—1, W. Swann. 2, G. Sadler. 3, Rev. J. Milner.

DUCKS (Any other variety).—1 and 2, W. Binns (Mandarin and Bahama). 3, G. Sadler (Carolinas). *hc*, W. J. Thompson (Black East Indian).

GUINEA FOWLS.—1, O. A. Young. 2, A. Robson. 3, Miss Wilson.

SELLING CLASS.—1, W. Swann (Dorking). 2, W. T. Barker. 3, J. Bell (Game). *hc*, H. Wilkinson (Spanish). *c*, W. Jaggs (Spanish); W. Patterson (Spanish); H. Sharpe (Polish); G. Stalker (Hamburghs).

COTTAGERS' CLASSES.

GAME.—1, R. Swann. 2, E. Rutherford. 3, J. Robson. *hc*, J. Brown & Son.

HAMBURGHS.—1, D. Cheyne. 2 and 3, G. Stalker.

BANTAMS.—1, G. Bell. 2, J. Ross. 3, G. Dowie.

ANY OTHER VARIETY.—1, R. Hind (Buff Cochins). 2, J. Webster (Buff Cochins). 3, J. Anderson (Brahma Pootras). *c*, J. Oliver (Spanish).

PIGEONS.

CARRIERS.—1 and Cup, R. Daniels. 2, E. C. Stretch. *hc*, Thompson and Simpson. *c*, G. Sadler.

TUMBLERS.—1 and 2, R. Daniels. *hc*, H. Yardley; G. Sadler; W. J. Donkin. *c*, W. B. Van Haansbergen.

POUTERS.—1 and Medal, Thompson & Simpson. 2, R. Daniels. *hc*, G. Sadler.

OWLS.—1, G. J. Taylor. 2, A. Ashton. *hc*, H. H. Taylor; A. Ashton. *c*, A. Ashton; A. A. Vander Meersch.

TURBITS.—1, W. B. Van Haansbergen. 2, Master J. D. Maynard. *c*, J. G. Dunn; W. Croft; G. Cresswell; W. B. Van Haansbergen.

BARBS.—1 and 2, W. B. Van Haansbergen. *hc*, R. Daniels. *c*, H. Yardley.

JACOBINS.—1 and *c*, R. Daniels. 2, A. A. Vander Meersch.

FANTAILS.—1, H. Yardley. 2 and *c*, J. Walker. *hc*, J. F. Loversidge; W. B. Van Haansbergen.

ANY OTHER VARIETY.—1, W. B. Van Haansbergen (Nun). 2, H. Yardley. *hc*, G. J. Taylor; R. Daniels (2). *c*, H. H. Taylor (Black-headed Nun); T. W. Kilburn.

SELLING CLASS.—1, W. Bearpark. 2, J. G. Dunn. *hc*, R. Daniels (Red Beards).

CANARIES.

MULES (Buff).—1, T. Curley. 2, W. Achingclass.

SINGING BIRD (Any other variety).—1, T. Arkle (Norwich Canary). 2, T. Curley.

ANY OTHER BREED EXCEPT SINGING BIRDS.—1, A. Hay (Indian Rock Parrot). 2, R. Swann (Paraquet).

EXTRA STOCK.—*thc*, Rev. J. S. Hind (Eagle).

JUDGES.—Mr. John Douglas, of Clumber, and Mr. Edward Hewitt, of Birmingham.

CROWING AND CACKLING NOT A NUISANCE.

COUNTY COURT, CHIPPENHAM, Wednesday, May 15th (before C. F. D. Caillard, Esq., Judge).—*Smith* v. *Bull*.—This was the only defended case, and was an action brought for alleged nuisance and discomfort, caused to the plaintiff by the defendant keeping certain fowls in close proximity to the house of the former. Mr. Bartrum, of Bath, appeared for the plaintiff; and Mr. A. B. Smith, of Melksham, for the defendant. Damages were laid at £5.

The parties are next-door neighbours, and the plaintiff complained that the noise of the cock crowing and the hens cackling prevented his sleep at night and disturbed his peace of mind by day, whilst the stench arising from the excrement of the fowls was quite intolerable. The defendant, on the contrary, stated that a certain noisy old cock, who seemed to be most offensive to the plaintiff, had been made away with, that the

cackling complained of only happened when a hen had laid an egg, that the fowls were regularly cleaned, and no effluvia nor smell arose from their excrement. The latter part of this testimony was corroborated by Mr. Lightfoot, Inspector of Nuisances. After a patient hearing his Honour directed a non-suit, allowing defendant's attorney's fees, stating that the nuisance complained of, both as to noise and smell, was entirely one of degree, and he did not consider that the defendant had so exceeded the right which he possessed of turning his property to the best advantage as to entitle the plaintiff to a verdict.—(*Wilts Chronicle.*)

TUMBLING PIGEONS.

Had other engagements not prevented me I should have replied sooner to "Wiltshire Rector's" remarks on my letter, at page 376, not particularly in reference to the tumbling of Short-faced birds, but rather as to the tumbling faculty in different breeds of birds, on which point I think that "Wiltshire Rector" is entirely wrong in theory. He is evidently of opinion that tumbling is of two kinds—voluntary and involuntary—in the high-flying variety a matter of fun and frolic, and in the Roller and House Tumbler, a Pigeon disease, akin probably to St. Vitus's dance in the human species. I hold an entirely different opinion—viz., that in every case the tumbling is a purely involuntary action. The flying may be a matter of fun and frolic, the tumbling never. The skill is not in losing the equilibrium, but in regaining it.

In case it may be thought that I make the above statement with an imperfect knowledge of the subject, I may state that my experience is at least half as long as "Wiltshire Rector's;" and that although my observations have been chiefly made on one variety of the tumbling bird, yet that there is in it a sufficient field for accurate investigation may be gathered from the fact that I have, at different times, possessed birds in which all the after-mentioned peculiarities had been noted.

1st, Of birds that would only tumble when high in the air I have had some that did so frequently, others only seldom; some that did it without dropping apparently in the slightest, others where the tumble was always followed by a heavy fall downwards; some where the performance was noiseless, and others where it was always preceded by a loud flapping of wings; many where the tumbles were always single, and only one that I recollect of which rolled, which I understand means a number of turns without any clear or distinct break between each.

2nd, Of birds showing marked individual characteristics I had one that could come down from a height of 6 feet or so outside, only with a roll of three or four turns, and to get up to the same height would have first to make three or four futile attempts; yet the same bird, although nesting at a greater height inside, I never knew to tumble or roll in the loft, and also if taken to some little distance from home would rise right into the air, and get back without giving a single tumble. In contrast to the preceding, I had another which would fly from my courtyard to the top of my dwelling-house with perfect ease, but if taken into my garden, which was only separated from the yard by a wooden railing not more than 3½ feet high, no matter how close to the railing, it could not fly over for tumbling. One I had which tumbled very well inside the loft, going clear over, but outside when high in the air only backed. Some I have had which would occasionally tumble well inside the loft, particularly when going to nest, at other times not at all; others I have had which would tumble any hour of the day, and any day of the year.

I have watched all carefully, have studied their various peculiarities with minuteness, and where possible have applied tests, the result of which is, that no matter how easily the tumbling may be done, or how seldom, I am thoroughly persuaded that not one of them does it when it can help it. That good flying Tumblers become quite indifferent to it, and acquire both skill and confidence in catching themselves up again, I quite admit; but whether the cause be a giddiness in the head or not I cannot say (but incline to think so from having seen some House Tumblers when too much flurried show a slightly tremulous motion in the head and neck), but that the cause is the same in every case I am thoroughly satisfied.

That my theory is correct in so far as it relates to Rollers and House Tumblers "Wiltshire Rector" admits, and the proof is not ill to find, as, although I have almost no experience of Rollers, I understand that such a casualty as that of a bird rolling so far as to be seriously injured or even killed is not of unfrequent occurrence, which would scarcely happen if the action were a voluntary one; and in the case of House Tumblers we find birds which rarely use their wings unless when forced to do so, or when under the influence of strong excitement, such as that of a cock attempting to follow a hen which he is driving and which has flown away from him. In either case the attempt would not be followed by such a fruitless effort if the bird had power to do otherwise. This last class, however, throw birds regularly which will fly as freely, tumble seemingly as sportively, and at the same time acquire as much skill in picking themselves up again as any other known breed; and for my part I cannot see why it should be supposed that the cause of the same performance in the case of the progeny should be different from what it undoubtedly is in the case of the parent.

Another evidence I will endeavour to adduce from the peculiar flight of tumbling birds, and this to many minds will be a more satisfactory one, as I think that all who may have birds which do tumble in their possession, will be able to observe it for themselves—at least I have noted it in birds which had neither the blood of the Roller nor of the Scotch breed within their veins, and where the performance only came up to a very moderate standard; in fact, little more could be said about it than that they did tumble, but from my point of view, at intervals "few and far between." The peculiarity to which I allude is a hovering in the air, accompanied by a tremulous motion of the wings, during which, if progress is made at all, it is by no means so fast as at other times, and I think it is generally in an upward direction if the birds are taking a flight. It is from this cause principally that it is impossible to train other breeds to fly along with Tumblers without spoiling the beauty of the flight, as the Tumblers are invariably outpaced and disorder ensues. The singularity of the Tumbler's flight in this respect, I am satisfied, proceeds from the bird steadying itself while endeavouring to overcome the inclination to tumble, of which, at least, partial evidence is afforded from the fact that the peculiar motion is frequently followed by a tumble, and to my mind is fully proved by the fact that the same unusual motions are observed among House Tumblers which can fly in the loft, and these undoubtedly proceed from the cause which I have stated.

I think the foregoing should be convincing proof that in no case is tumbling voluntary, at least to those who, like "Wiltshire Rector," will follow out the subject by careful observation; but to those who may still doubt it, I would say, Let them do as I have done, study the tumbling of every bird individually; let them mark off such as give them satisfactory proof that the action is an involuntary one, and I think from the small number of the others which will soon be left, that they will speedily be convinced. Merely as an indication of the principles on which observations may be made, I would say, At once mark-off all cocks which tumble while driving the hen to nest, as tumbling always loses time, and every cock is at that season too anxious to keep close to his mate to do so voluntarily; and the fact that many birds tumble better then than at any other time, is chiefly owing to the extra dash with which they fly in the case stated.

"Wiltshire Rector" thinks he differs with me in taste, and I admit he does so to a certain degree, but not to such an extent as he obviously imagines, as I will endeavour to show in the course of a subsequent letter or letters, as opportunity may occur, and in which I shall endeavour to explain my views on the subject of the Scotch House and Air Tumbler.—Scotch Thistle.

The Royal Counties (Hants and Berks) Agricultural Society hold their annual Exhibition of poulty, Pigeons, Rabbits, &c., in the Home Park, Windsor, on the 26th, 27th, and 28th of June. The Exhibition has the immediate patronage of Her Majesty, who has given substantial proof of her desire to promote its interests. In addition to the usual attractions a grand floral and horticultural fête will be held in the show yard: Messrs. Turner, of Slough, take an active part in the management. The advertisement in another part of our paper gives full particulars.

Weight of Eggs.—Seeing a note in the "Poultry Chronicle," of March 28th, that a dozen of the eggs from Brahmas weighed 26 ozs. led me to weigh a dozen of mine from my prize Crevecœur, and I am pleased to inform you that they exceed the Brahmas by 6 ozs. I have now a few dozens which average 32 ozs. per dozen.—Fanny Hopkins.

DRONE-REARING.

Why are not drones raised at certain seasons of the year when they are not needed? Is it because the queen does not deposit eggs in the drone cells? By what I have observed I am thoroughly convinced that the queen will deposit eggs in drone cells at any time of the year, just as readily as in worker cells, but, as drones are not needed, the worker bees enter the cells and eat up the eggs. I will state what I have observed.

One year ago last fall, after the drones were killed off, I opened one of my hives which had a glass in the side, and saw the queen on the outside sheet of the comb next to the glass depositing eggs. About one-half of this comb was worker comb, and the other half drone comb. The queen first deposited eggs in the worker cells, then, passing over on the drone comb, she deposited eggs in the drone comb. Wondering whether drones would be raised so late in the season, I watched the operation of the bees closely. In about half an hour the worker bees com-

menced entering the drone cells, and in a short time every cell had a bee in it. They remained in the cells about half an hour, and when they emerged the eggs were gone. Hence I came to the conclusion that, as drones were not needed, the bees eat up the eggs. I also observed a similar circumstance early last spring when opening a hive with glass on the sides. This hive also had worker cells and drone cells on the outside comb next to the glass. I saw the queen, but when the light shone in the hive she crept behind the comb, and I lost sight of her, but I observed a few eggs in the worker cells which appeared to be just deposited. I shut up the hive, and in about one hour opened it again. Nearly every empty cell, drone and worker, had an egg in it, and as it was rather early in the season for drones to be reared, I wondered if the worker bees would enter the drone cells and eat up the eggs as I had observed before. I watched again. In about one hour the bees commenced entering the drone cells. Some of them remained in nearly an hour, when they withdrew, and the eggs were gone.

By these observations I am convinced that the queen will deposit eggs in drone cells when they are not needed, but the worker bees enter the cells and eat up the eggs.—G. Ott, *Ontario, Canada.*—(*American National Agriculturist.*)

The Forthcoming Poultry Show at Aston.—This Exhibition is not connected with the show annually held at Bingley Hall. The Birmingham and Midland Counties Poultry Show Society (of which Mr. Lythall is the Secretary) have nothing to do with the management of the summer show.

OUR LETTER BOX.

Cross-bred Pheasants (*E. R.*).—We have never heard of a cross between the Golden and Silver Pheasants having been accomplished, although it has been tried. We believe it would be sterile. We know that the hybrid between a Pheasant and a barndoor fowl is so.

Cochin Cockerel's Legs Swollen (*H. P.*).—There is a time when a large Cochin cockerel has outgrown his strength, and when the long legs cannot support the heavy body; at that period the bird walks with difficulty, and spends most of his time squatting on his knees. He is upright as you describe only for a minute at a time, and then seems to sink down from sheer inability to stand upright. But his legs do not swell, nor is there any inflammation. In this case it is overgrowth. Increased age, a generous diet, and ceasing to grow are a perfect cure; but as we do not suppose you would buy a very young bird in the month of March, we can hardly think undue growth has anything to do with the complaint. Is he shut up at night in any place with wood, stone, or brick floor? Either induces disease of the foot and knee joint. If the bird is worth the trouble, give him ground oats slaked with milk instead of the barley and maize, and feed him on boiled egg and meat both cooked and raw chopped up. A cock, however, that is useless at the end of May should be very good to be worth all this trouble and expense. If he were ours we should consign him to to the stockpot, and say, "Better luck next time."

Parrot Feeding (*Idem*).—You may feed your Parrot on bread and water' bread and milk, hempseed, canary, at times a grain or two of Indian corn' green food and ripe fruit. Be very sparing with the hemp about moulting time. We give water to everything, even to Rabbits, and let them drink or not as they think fit.

Cr.ve-Cœurs' Legs Downy (*F. I. J.*).—It is by no means usual for Crève-Cœur fowls to have down on their legs and feet, yet you will sometimes find stubs on the outside of the legs of fowls of unquestionable merit and purity. We must not be misunderstood. It is not only not desirable, but it would in close competition turn the scale against the bird that had them.

Hen's Influence on Her Eggs (*W. O.*).—The breed, shape, or colour of the hen sitting on eggs have no influence whatever on the produce of them. There was a difficult question of nationality during the war at the beginning of this century. The man was the son of a Frenchman by an English mother. He was born at sea within Dutch jurisdiction, but on board a German vessel, carrying the Danish flag. Your chickens are compounded of Brahma, Dorking, and Buff Cochin. The appearances you describe have nothing to do with the sitting hen. Some of the chickens may appear pure, but they will certainly throw back, and your apparently pure Dorkings will give you Brahma and Cochins, and *vice versâ*. We are not friendly to crosses; those who are should, we think, be content with the mixture of two breeds. The hen sat on some of her own eggs, and she was half Dorking. No marvel that one of the chickens has five toes.

Cat Eating Chickens (——).—If you know the owner of the cat, give him notice to keep it from trespassing, and if the cat again eats your chickens sue the owner in the County Court for the value of them.

Pigeon Race (*H. P. P. P.*).—We are very much obliged by your note, but as we announced in our last number, we have received a supply of the catalogues.

Second Scottish Metropolitan Dog Show.—"Fairplay" wishes to know why the Judges, whilst awarding, had catalogues?

Challenge (*J. G. Dunn*).—We cannot insert your challenge except as an advertisement.

Bees Not Working (*Apiarian*).—Your hive of bees in a common cottage straw hive, three years old with plenty of honey in it, but the bees not working, have probably either lost their queen, or else she is in an enfeebled condition and at the point of death. In either case you had better follow the advice we gave a week or two back in "Our Letter Box," to one whose bees were in a similar predicament. Either destroy the bees with sulphur, if few in number, and put a fresh swarm into the hive; or else substitute in place of it an old hive which has just swarmed, allowing the bees to help the young brood. You may thus get a good second swarm.

Prices a Century Since (*Housekolder*).—We think you are entirely mistaken in your opinion that articles for domestic consumption were cheaper a hundred years ago than they are now. It is quite certain, from tradesmen's bills in our possession, that the goods then charged for were much dearer than they are at present, and vastly so if we take into account the greater value of money at that distance of time. We will quote a few items:—"Feby. 22, 1734. Esqr. Farefax Bought of Lanct. Bland 30 pounds of Chocolate at 5*s* 6*d*. a-pound—£8 5*s*. 0*d*." It is now 3*s*. a-pound. "The Honble. Mr. Fairfax Bought of Collet Mawhood, at ye Golden Lyon and Unicorn, against the New Exchange in the Strand, 1737, March 28, 3 lbs. finest Hyson Tea, 20*s*.—£3; 6 lbs. fine Green Tea, 16*s*.—£4 16*s*.; 1 lb. fine Bohea Tea, 12*s*." The present prices for these being respectively 6*s*., 4*s*. 6*d*., and 2*s*. 6*d*. per lb. For medicines in 1731, Mr. Fairfax paid Messrs. Graham, apothecaries, for "nine ounces of the finest Peruvian Bark, £1 7*s*.; One ounce and half best Rhubarb in root, 6*s*." The present prices are for Bark, 4*s*. 6*d*. per lb., and for the finest Turkey Rhubarb, 30*s*. per lb.

METEOROLOGICAL OBSERVATIONS,
Camden Square, London.
Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitnde 111 fe et.

Date. 1872. May.	A.M. Barometer at 32° and Level.	A.M. Hygrometer. Dry.	A.M. Hygrometer. Wet.	A.M. Direction of Wind.	A.M. Temp. of Soil at 1 ft.	In the Day. Shade Temperature. Max.	In the Day. Shade Temperature. Min	In the Day. Radiation Temperature. In sun.	In the Day. Radiation Temperature. On grass	Rain.
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 15	29.824	52.4	49.8	N.W.	50.2	62.5	44.3	118.8	39.8	0.090
Th. 16	29.799	56.4	50.7	S.W.	51.1	67.4	43.4	111.0	36.0	0.140
Fri. 17	29.655	49.8	49.5	N.	52.4	55.3	49.0	81.8	47.8	0.634
Sat. 18	29.562	41.5	41.5	N.	53.9	48.9	39.1	67.0	40.2	0.149
Sun 19	29.775	45.8	39.5	N.W.	48.9	57.6	33.8	98.0	31.9	—
Mo. 20	29.850	59.2	44.3	S.	49.8	69.8	39.2	105.3	36.2	0.010
Tu. 21	29.837	51.7	46.2	S.W.	50.2	64.5	40.9	115.7	38.6	—
Means	29.754	49.6	45.9		50.5	59.1	40.5	99.5	37.8	1.014

REMARKS.

15th.—Rather dull morning, rain at 12.15 for about half an hour, sunshiny and fine afterwards.

16th.—Cloudy and close in morning, beautiful afternoon and evening.

17th.—A wet day throughout, more than half an inch of rain falling during the twenty-four hours.

18th.—Another rainy day and very cold, the greatest heat in the day being only 48.2°, and the thermometer in the night going down to 31.9° on the grass.

19th.—Fair all day, but cloudy and cold.

20th.—Cold, but fair all day except a very slight shower till the evening, when there was a little more rain.

21st.—Very fine morning, and the whole day bright and pleasant with a few passing clouds, and a sprinkle of rain about 6 P.M.

Temperature generally low and similar to last week; the rainfall is also similar, being over an inch, and therefore largely above the average.—G. J. Symons.

COVENT GARDEN MARKET.—May 22.

We have no alterations to report. Large supplies of new Potatoes have arrived from Portugal.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples..... ½ sieve	3	0	to 6	0	Melons..... each	6	0	to 15	0
Apricots..... doz.	4	0	8	0	Nectarines..... doz.	15	0	30	0
Cherries..... per box	3	0	5	0	Oranges..... ₱100	4	0	10	0
Chestnuts..... bushel	10	0	20	0	Peaches..... doz.	18	0	40	0
Currants..... ½ sieve	0	0	0	0	Pears, kitchen..... doz.	0	0	0	0
Black..... do.	0	0	0	0	dessert..... doz.	0	0	0	0
Figs..... doz.	12	0	15	0	Pine Apples..... lb.	6	0	12	0
Filberts..... lb.	0	6	1	0	Quinces..... doz.	0	0	0	0
Cobs..... lb.	0	6	1	0	Raspberries..... lb.	0	0	0	0
Grapes, hothouse... lb.	7	0	12	0	Strawberries..... ₱lb.	6	0	15	0
Gooseberries..... quart	1	0	1	6	Walnuts..... bushel	10	0	25	0
Lemons..... ₱100	7	0	10	0	ditto..... ₱100	1	0	2	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes..... doz.	4	0	to 6	0	Leeks..... bunch	0	2	to 0	0
Asparagus..... ₱100	6	0	12	0	Lettuce..... doz.	1	0	2	0
Beans, Kidney..... ₱100	1	6	2	6	Mushrooms..... pottle	1	0	2	0
Broad..... bushel	0	0	0	0	Mustard & Cress.. punnet	0	2	0	0
Beet, Red..... doz.	1	0	3	0	Onions..... bushel	2	0	4	0
Broccoli..... bundle	0	3	1	6	pickling..... quart	0	6	0	6
Brussels Sprouts.. ½ sieve	0	0	0	0	Parsley per doz. bunches	3	0	4	0
Cabbage..... doz.	1	0	1	6	Parsnips..... doz.	0	9	1	0
Capsicums..... ₱100	0	0	0	0	Peas..... quart	3	0	5	6
Carrots..... bunch	0	6	0	0	Potatoes..... bushel	4	0	5	6
Cauliflower..... doz.	2	0	4	0	Kidney..... do.	3	6	6	0
Celery..... bundle	1	6	2	0	Radishes.. doz. bunches	0	6	1	0
Coleworts.. doz. bunches	2	0	4	0	Rhubarb..... bundle	0	3	1	0
Cucumbers..... each	0	6	1	6	Savoys..... doz.	0	0	0	0
pickling..... each	0	0	0	0	Sea-kale..... basket	0	0	0	0
Endive..... doz.	2	0	3	0	Shallots..... lb.	0	4	0	0
Fennel..... bunch	0	3	0	0	Spinach..... bushel	3	0	4	0
Garlic..... lb.	0	3	0	0	Tomatoes..... doz.	3	0	6	0
Herbs..... bunch	0	2	0	0	Turnips..... bunch	0	3	0	0
Horseradish..... bundle	3	0	4	0	Vegetable Marrows.. doz.	0	0	0	0

POULTRY MARKET.—May 22.

The supply of poultry at market increases, and in some articles prices have a downward tendency. The time is come when there should be a larger arrival, and sufficient trade to carry it all off at a fair price.

	s.	d.		s.	d.		s.	d.		s.	d.
Large Fowls	5	0	to	5	6	Partridges	0	0	to	0	0
Smaller ditto	3	6		4	0	Hares	0	0		0	0
Chickens	2	6		3	6	Rabbits	1	5		1	6
Goslings	6	0		7	0	Wild ditto	0	9		0	10
Ducklings	3	0		3	6	Pigeons	0	9		0	10
Guinea Fowls	0	0		0	0	Pheasants	0	0		0	0

WEEKLY CALENDAR.

Day of Month	Day of Week	MAY 30—JUNE 5, 1872.	Average Temperature near London.			Rain in 43 years.	Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock after Sun.	Day of Year.
			Day.	Night.	Mean.	Days.	m. h.	m. h.	m. h.	m. h.	Days.	m. s.	
30	TH	Meeting of Royal Society, 8.30 P.M.	68.4	44.7	56.6	17	53 af 3	2 af 8	39 af 1	after.	23	2 43	151
31	F		69.4	44.8	57.1	16	52 3	3 8	57 1	36 1	24	2 34	152
1	S		68.4	45.9	57.2	15	52 3	4 8	13 2	50 2	25	2 25	153
2	SUN	1 SUNDAY AFTER TRINITY.	68.9	45.1	57.0	19	51 3	5 8	28 2	4 4	26	2 16	154
3	M	Entomological Society's Meeting, 7 P.M.	69.4	44.2	56.8	21	50 3	6 8	44 2	18 5	27	2 6	155
4	TU	Meeting of Zoological Society, 9 P.M.	69.3	44.4	56.9	15	49 3	7 8	2 3	31 6	28	1 56	156
5	W	Royal Horticultural Society, Great Show, Fruit, Floral, and General Meeting.	70.5	47.3	58.9	24	49 3	8 8	25 3	43 7	29	1 45	157

From observations taken near London during forty-three years, the average day temperature of the week is 69.2°; and its night temperature 45.2°. The greatest heat was 90°, on the 5th, 1846; and the lowest cold 33°, on the 5th, 1856. The greatest fall of rain was 1.02 inch.

THE CULTURE OF PYRAMID PEAR TREES.

THESE useful fruit trees are now everywhere cultivated. Both in large and small gardens they find a place, and under all circumstances they well repay the careful, painstaking cultivator. In many cases I have seen them grossly mismanaged, sometimes from ignorance of the requirements of the trees, at others from a pressure of work having prevented their being attended to at the proper time.

In order to make these remarks useful to amateurs and others, I will presume that a number of trees have to be purchased; a visit should be paid to the nursery in October, and the trees selected. Large trees specially trained may be purchased at a high rate, but for ordinary purposes trees two years from the bud or graft should be selected; and at the outset a very important question arises, and that is, the best sorts to select.

The earliest is the Summer Doyenné, which makes a fine pyramid; Beurré Giffard requires more care to train into this form; Jargonelle cannot be omitted, but is one of the most difficult to train as a pyramid; Williams's Bon Chrétien is indispensable, the fruit should be gathered before it is ripe. Louise Bonne of Jersey forms a handsome pyramid, and is better grafted on the Quince than on the Pear stock. It is the best October Pear we have. Marie Louise forms a handsome pyramid on the Pear stock; it does not succeed on the Quince. General Todtleben makes a robust pyramid on the Quince, but it does not bear freely with me. Maréchal de la Cour is a good November Pear. Beurré Superfin and Doyenné du Comice on clay soils are two of the finest Pears in cultivation; on our gravel subsoil they are only second or third-rate, and do not bear freely. Josephine de Malines succeeds both on the Pear and Quince stocks. Zéphirin Grégoire is a free-bearing variety of delicious flavour. Bergamotte d'Esperen is the best late sort. These are arranged in the order of ripening, and are generally good. Other good varieties are Souvenir du Congrès, Madame Treyve, Beurré Hardy, Beurré Bosc, Beurré d'Aremberg, and Beurré de Rance. All the above Pears deserve a trial. No doubt many more sorts equally good may be added, but I have had no experience of them. If any particular sort does not succeed it is an easy matter to head the tree back, and regraft it with a variety that will thrive.

The trees should be planted in well-prepared ground in November, selecting a dry day when the ground is in good order. I like to place a barrowload of decayed turfy loam, well chopped-up, over the roots of each tree. Trees worked on the Quince stock should be planted to the depth of the union of the graft with the stock; those on the Pear stock should not be planted deeper than they were in the nursery. In placing the soil over the roots see that it is shaken in well amongst the fibres, tread it in rather firmly, and mulch the surface with short frame manure. If the trees are likely to be disturbed by winds place a stick to each, and they will be safe for the winter. Some of the young shoots may require to be cut back; this ought to be done in February, and the grafts may be stuck in the ground at the base of the tree if they are required.

Trees grown in the pyramid form are trained to a single leading shoot, while the side shoots are arranged so as to form a regular pyramid. It is necessary to place a stick to some of the varieties in an early stage of their growth, and to train the leading shoot to it.

We now come to the summer treatment of the trees. Nearly all the pruning should be done in the summer months. The leading shoot should be pinched or stopped two or three times during the season. The side shoots should also be stopped, thinned out, and regulated as often as they require it. The first season after planting, the trees will not grow much, and may not require very much attention; they will, however, form a mass of fibrous roots which will serve to start the trees into vigorous growth the following season. I have seen young Pear trees allowed to throw up a perfect thicket of strong shoots, which were cut back at the winter pruning; no wonder if such trees are unfruitful until they are five or six years old, and then bear but sparingly. Judicious summer-stopping and thinning the young shoots will invariably throw the trees into bearing. Another evil to be guarded against is the tendency the trees have to become crowded in the centre; at no stage of growth should this be permitted, holding fast to the principle that all the thinning and regulating of the shoots should be done in summer when the trees are in full leaf.

A row of pyramid Pear trees carefully trained has an exceedingly fine effect in any garden, but it is only where a love of the subject exists that due attention will be given to them. Where this special interest exists, the trees will be a constant source of enjoyment from the time they are covered with their snow-white blossoms in spring until the fruit is gathered in the mellow autumn months. These trees may be planted in many different positions in the kitchen garden, according to its formation or the taste of the owner. The best arrangement I have yet seen is to form borders on each side of the main walks; they may be from 7 to 9 feet wide, and may be planted in the following manner:—The back row pyramid Pear trees not less than 6 feet apart; the next row, at the distance of 3 feet, pyramid Currant or Gooseberry bushes; and, at the distance of 15 inches from the Box edging, a single cordon formed of Apple trees, which have an exceedingly fine effect. If the cordons are not desirable, Strawberry plants, Lettuce, Parsley, or any other crop of small-growing subjects may be substituted. Pyramidal fruit trees are also very effective if planted as division lines to the kitchen-garden quarters; but in all cases avoid placing too much manure in contact with the roots. If the ground is poor it is very easy to enrich it with surface-dressings, which will entice the roots nearer the surface, where they can be maintained in a healthy moist medium by summer mulchings.

I wish I could suggest some practicable means to

protect the blossoms from spring frosts. When the trees are of small size it is not difficult to throw a covering of tiffany or some similar material over them, which will serve to ward off the effects of a pretty sharp frost on calm nights, but it is a sorry protection against cutting east winds. I tried recently to protect a number of trees of large size by means of a wooden framework fixed round the tree, and the protecting material thrown over it, but the result was not such as to warrant a continuance of the practice. I think we never had a better show for fruit than this year, but our hopes are sadly blighted. Peaches and Plums are almost *nil*. Apples and Pears appear to better advantage, and of the former I think there will be a crop.—J. Douglas.

PLANTING FORCED STRAWBERRY PLANTS.

I was very glad to see in the "Doings of Last Week" (page 110), "R. F.'s" remarks on planting-out forced Strawberry plants.

In my opinion, where Strawberries are forced in quantity there is no necessity for permanent plantations, which very often after the second year can only be characterised as a waste of ground. With forced plants we do not occupy the ground more than twelve months. After forcing, the plants only need to be set in the pots on ashes, and attended to with water until the ground they are to occupy is cleared of the first crop of the year—say early Potatoes, Peas, or Cauliflowers. These crops will be off by the middle of July, and the ground trenched, well manured between the top and bottom spit, and immediately planted. If, however, it be wished to plant the early kinds for the chance of fruit in autumn, the plants may be put out in May, so as to follow the Broccoli. I have a decided objection to cover them with protectors, which are absolutely necessary for the ripening of the fruit if the autumn is at all wet and cold, as doing so makes them tender, and they do not fruit so well the following summer as plants that are not planted until July, and do not fruit in the autumn after planting. There is no objection to keeping the plants in the pots until July, except the trouble of watering, or a want of pots. This is easily got over by turning them out of the pots, packing them closely together in an open spot, and filling up the interstices with soil that has been used for forcing Kidney Beans, or with any kind of spent compost. Here they may remain until July without much trouble as regards water, for except in case of continued dry weather they will not need any.

Forced plants do not grow nearly so strong as those which are planted as runners in the first instance. I do not plant the Black Prince more than 15 inches apart, and all the others 18 inches, the rows being 2 feet apart. In planting, all the runners are removed—in fact, the plants are not allowed to form any—also the old leaves, leaving the young only. The sides of the ball are loosened a little, and the plants are put in with the soil firmly about them. If they are dry at the roots, a good watering is given prior to planting, following with one after planting, so as to settle the soil nicely round the ball, and the plants need no more attention beyond keeping them clear of weeds until October, when they are top-dressed with manure in the usual way; it is not pointed-in in spring, nor is the surface afterwards disturbed, the weeds being removed by hand-picking.

After the plants come into flower I give a top-dressing, or rather hand-dressing, of guano and salt—two parts of the former to one of the latter—at the rate of one peck to three rows each 14 yards long. I do not allow it to touch the plants, but sprinkle it between the rows clear of the foliage. This I put on in moist weather in the evening. Every slug it touches it kills. If the weather is dry, it is washed-in with a hose pipe. The plants receive no water after this until the first picking, when they are well soaked again, and afterwards twice a-week until the gatherings are at an end.

The best mode of keeping the fruit clean is to place a small hazel stick to each truss, and secure it with matting. This is certainly tedious, but well worth the trouble for selected fruit for the dessert; besides keeping them clean, it saves them from the slugs, from spotting and decaying in a cold wet season, and they ripen much more evenly and perfectly. The sticking has also another advantage—it preserves the berries from mice, which with me do much mischief in the Strawberry quarters by eating off the seeds from the surface of the Strawberries. These mice are very crafty; they will not take poison; I cannot trap them. They are the short-tailed field mice, perfect miniatures of the water rat, about twice the size of the ordinary house mouse, and a much more fat, well-proportioned, even handsome animal. Will anyone help me against these?

As soon as there are runners on the Strawberries they are layered in 3-inch pots sunk in the ground between every alternate row of Strawberries, and this permits of the fruit being gathered without interfering with the pots, and I have nets that will just cover two rows. After the fruit is gathered, when the runners are well rooted they are detached, placed in a shady spot for a few days, potted in a week or ten days, the old plantation, just a year old, chopped up, and the ground dug and planted with Broccoli, Cauliflower for a late supply, or other winter greens.

By this mode the Strawberry plantations are annual, and as "R. F." says, "there is no plan that will equal this for obtaining large crops the first season after planting." This may partly be owing to their not running much to leaves, nor forming runners plentifully; but I think it is also a result of having plants of known fertility, for there is not one barren plant amongst them. It is not worth while to leave them for a second year's produce, though they will yield fruit more or less plentifully for preserving.

The varieties I grow are Black Prince; it is still the best for early produce, and fine for preserving. Sir Joseph Paxton is nearly as early as Black Prince, a better setter, not liable to mildew, and has a firm flesh—of some consequence when the fruit has to be sent nearly three hundred miles by rail. Sir Joseph Paxton, as I have it, is just the Keens' Seedling of a quarter a century ago, nothing more nor less. Not one in ten of the Keens' Seedlings of the present day is the old true sort. The variety has either degenerated or got mixed up somehow. President follows Sir Joseph Paxton, then Dr. Hogg, British Queen, and Cockscomb. Frogmore Late Pine is an admirable late sort, and the Red and White Alpine succeed and fruit in autumn.—G. Abbey.

THE TIME TO PLANT OUT THE DAHLIA.

One of the gravest and most frequent mistakes which take place among Dahlia growers is being in too great a hurry to plant out. This, too, is the error which just now they are most liable to make, and the one, too, against which to-day we offer what, we trust, is a word in season as well as a caution. And here we may remark, in passing, that as regards other planting out, as well as that of Dahlias, our friends will lose nothing by staying their hands a bit. The present is at all times a treacherous month, and he exercises a wise discretion who is not too prompt to expose stock wintered under cover to its fitful and trying vicissitudes. Our present May has been of the most wintry character. It is far better to exercise a little patience and wait till the end of the present, or even the beginning of next month, than be rashly hasty and venturesome in planting out, as have been some of our friends, who we see, notwithstanding the uninviting character of the weather, have not hesitated to expose their nurslings to its ungenial influences, and to a most certain and undesirable check, if not worse.

But to return to the Dahlia. One of the most important points in its management is that it should have no check whatever from the time it is planted. Yet growers, with rare exceptions, ignore it—nay, invite the consequences so much to be deprecated, by the very general practice of planting out too early. Very often, too, the plants thus early exposed are some just received from the nursery, and transferred at once from the pots in which they have been propagated and grown in heat, to the open ground, without a thought of repotting or gradually hardening to give them vigour, and prepare them for the change. In this last case we would not expect or look for other than the most unfavourable results. But, even in cases where propagation is carried on at home, and repotting and hardening-off attended to, bad consequences are sure to follow planting out too early. When this is done the plants receive a check to growth, become hard and wiry, and are at a stand for, perhaps, two or three weeks, and when they do take a start, even then in many cases the progress is far from satisfactory. In fact, Dahlia planting should not take place until June, when the weather is soft, warm, and settled, and the plants can, without check or hindrance, start into growth at once. Our advice then is, Whether you have the plants at home or from the nursery, repot, and that more than once, if time permits, and keep them on a dry bottom, in a cool frame, or under a temporary shelter, formed of hoops, over which canvas or matting can be stretched in case of frost. When

there is no risk from this last, they should have all the air possible. It is well to see that there is no overcrowding, but that each plant stands free of its fellows.

Treated in this way, you will have fine, strong, succulent plants, that will go ahead at once when put out, and leave far in the rear those planted weeks before them. The late Mr. Campbell was, as a grower and exhibitor of Dahlias, one of the most successful of the day, and he has often told us that for years the banging of cannon in the Park, on occasion of the Waterloo anniversaries (18th of June), and the planting of his prize Dahlias at Glasnevin were synchronous.—(*Irish Farmers' Gazette.*)

BEAUTY OF FORM IN THE FLOWER GARDEN.

It afforded me much pleasure, whilst reading through the pages of the Journal, to find Mr. G. Abbey had something to say in favour of the ornamental character of the Asparagus, and I only wish he had allowed his pen to have run more freely when descanting upon the beauties of this great favourite of mine. I perfectly agree with Mr. Abbey in saying that it would be difficult to name a plant to surpass the Asparagus for grace and elegance; and in spite of breaking through his rule of excluding all denizens of the vegetable garden from the beds and borders of the pleasure grounds, I should not hesitate to employ it in the best-kept and most *recherché* garden, although I quite endorse his sentiments respecting such things as Beet, Kale, &c. I have heard it remarked, that as the object in gardening is to produce a picture, it is of no consequence what is used to bring about the desired effect; but I must object to all coarse and commonplace-looking plants being introduced—I mean plants that have only coarseness without special beauty of form.

To return, however, to the Asparagus. My attention was first directed to this plant in the summer of 1859. Being then a young gardener, and having by dint of great economy and self-denial amassed a few pounds, I determined to expend my savings on a short tour in France, to see if the style of French gardening and plant-growing differed from that practised in my own country, and if so, in what way. With this object in view I launched out into what in those days seemed a gigantic undertaking and a terrible speculation, but I had ample reason to be well satisfied with my venture. During my short visit amongst the gardens of Normandy I made many friends, and was introduced by one to a grand floral decoration and illumination in the garden of a nobleman, where I saw much to admire and much to learn, and the knowledge thus obtained was carefully stored, and has many times been used with advantage in the various positions I have passed through. It was at the before-mentioned illumination that I first saw the Asparagus used for decorative purposes. Upon the margin of a small stream of water I saw groups of some plants of such beauty, that I was quite unable, by the light of the variegated lamps which twinkled amongst them and the distance at which I stood, to determine what plant it really was which gave such an enchanting effect to the scene. Judge, then, of my surprise when upon close inspection I found it to be Asparagus, a plant which up to that time I had never imagined fit for any place except the beds in the kitchen garden; but our artistic neighbours had found means to make it a feast for the eye when it could no longer be made to please their palate at the festive board. Since my first acquaintance with this plant I have seen it used in various parts of Germany, France, and other countries, and always with great effect. Twice myself I have had the opportunity of using Asparagus for garden decoration and illumination; the branches of the plants were cut and disposed in various groups of different designs, and the variegated lamps hung upon the laterals close to the stems, and as the branches were then laden with berries these added materially to the general effect. Upon one of these occasions several members of our Royal Family were present, and also a great number of distinguished foreign visitors, many of whom expressed much pleasure at the appearance and elegant effect produced by my pet plant. Those of my fellow gardeners who have used this plant for similar purposes will fully understand why I write so enthusiastically about it, whilst those who have not I would strongly urge to do so upon the first possible opportunity which presents itself, and give us the results of their experience.—Experto Crede.

Sale of Orchids.—About 280 lots of Orchids were sold at auction by Mr. J. C. Stevens on the 23rd inst. Some of them were fresh importations, and others were from the Rev. W. Ellis's collection, at Hoddesdon. The gross sum realised was £380. The highest biddings were for Dendrobium densiflorum, £9 10*s.*; Cœlogyne cristata, £5 5*s.*; Oncidium Weltonii, £6 15*s.*; Saccolabium præmorsum, £5; and Phalænopsis Schilleriana, £6 10*s.*

HORTICULTURAL DRAINING.

When soil becomes so saturated that all its interstices are filled with water to the exclusion of air, it is said to be waterlogged. The evils resulting from this stagnation in the soil are—1, A low temperature so constantly maintained by excessive evaporation that it is not materially affected by the heat of summer; 2, The exclusion of the air with its purifying nourishing gases; 3, The rain water, being thrown off as it falls, washes and hardens the surface, robbing it of its fertility instead of contributing thereto; 4, The beneficial action of both land and water are suspended, or so far checked as to afford insufficient nourishment to growing crops.

It follows, therefore, that all imperfectly drained soils are subject to such evils in proportion to the state of stagnation. Clay, from its tenacious nature, is most liable to be thus affected; and as clay enters largely into the composition of almost all soils, the necessity for drains will depend very much upon the quantity of clay present in the land to be treated. This rule, however, is not applicable in all cases; the strata beneath the surface being sometimes so irregularly deposited that water, which would otherwise escape from soil of a porous texture, is confined by a layer of earth not so pervious to the action of water. It is advisable, therefore, whenever land is found to require draining, to open a section line or trench across it from the highest to the lowest level; then, if it is discovered that the water is so shut in, a few large openings through the retaining mass will probably suffice to lay the land dry, and thus a considerable outlay will be avoided.

Many instances of irregular strata might be adduced to show the necessity for caution; one that lately came under my notice will suffice. In reducing the gradient of a hill for a road, it became necessary to make a cutting 6 feet deep. The soil rested upon a deep bed of sandstone gravel containing, at a uniform depth of 3 feet below the surface, a vein, or rather a layer, of blue clay so tough as to be excessively difficult to remove even with the aid of picks, so that there was no passage for water through, but only over it, thus confining the water in the portion of gravel and soil above it. Even where pure clay does not occur, the subsoil is often of so clayey a nature as to retain an excess of moisture in itself and in the soil proper.

The necessity for, and the depth and distance apart of drains, should bear a correct relation to the quality and condition of both soil and subsoil. A shallow soil containing so much clay as to be almost a swamp in wet weather, and drying into a hard crude inert mass, with a deep bed of clay beneath, should have drains no deeper than 2 or 2½ feet from the surface, nor more than 20 feet apart. A deeper and wider system of drainage might become necessary in time as the soil is improved and deepened by high culture, but till then the more shallow method must be followed. Professor Wrightson, in his instructive papers on agricultural drainage and irrigation, speaking of such soils says—"Their power of retention is very great, and this is a force which, while it exists, cannot be overcome by any number of drains. Clay soil will hold, according to the experiments of Schübler, 48 lbs. of water per cubic foot, and it is only the excess over this amount which would find its way into a drain. When, however, such soils are furnished with a series of underground channels, and when the work of the drainer is supplemented by deep cultivation, the character of the soil is gradually altered, the continuity of the soil is broken, air gains access, pulverisation takes place, and the altered soil becomes amenable to the ordinary rules which govern more usual cases. Vigorous treatment is, however, requisite, and no system of wide intervals between drains would be successful. The drains must be close enough to exert what Mr. Bailey Denton has termed a reciprocating effect upon one another—that is, so close that the action of one shall extend into the region of action of its neighbour."

Drainage, then, forms an important part of a thorough system of high culture. Alone it will not suffice: it should rather be regarded as the necessary foundation to future success; for if, by removing the excessive moisture, rain water and air penetrate the soil, raising its temperature, ameliorating its crudeness, and bringing into activity many valuable substances,

it is very certain that a deep and frequent stirring of the soil must contribute very materially to such desirable results.—Edward Luckhurst.

BOTANIC GARDENS, GLASNEVIN, DUBLIN.

The following is a list of plants in bloom on the 18th of May :—

Atragene austriaca
Azaleas
Aconitum Napellus
Adonis autumnalis
vernalis
Anemones
Asphodelus luteus
albus
tauricus
Aquilegias
Anemone palmata
thalictroides
Ajuga pyramidalis
Alchemilla alpina
fissa
Aster altaicus
Arenaria montana
Allium triquetrum
suaveolens
angulosum
lineare
tenuifolium
caspicum
atropurpureum
Arabis variegata
Arum crinitum
Anchusa sempervirens
Alyssum saxatile
maritimum
olympicum
sinuatum
spinulosum
denticulatum
Antenoaria dioica
plantaginea
Aubrietia Columnæ
Mooreana
græca
deltoides
grandiflora
erubescens
Alopecurus ruthenicus
Avena pubescens
pratensis
Armeria purpurea
Halleri
splendens
oblongiflora
cephalotes
Berberis cuneata
Darwinii
sibirica
dulcis
canadensis
Biscutella fratescens
Cytisus creticus
biflorus
capitatus
purpureus
ruthenicus
ciliatus
Clematis montana
Crataegus
Carex pendula
brizoides
intermedia
tomentosa
stricta
maxima
cæspitosa
Caraway
Cowslip
Claytonia sibirica
Calceolaria violacea
Cypripedium Calceolus
Cerasus japonicus
Pados
Cydonia japonica
vulgaris
Chestnut
Caragana Redowski
Altagana
Cerastium var.
Centraothus
Coronilla Emerus
velutina
Campanula speciosa
Centaurea altaica
Chelone gracilis
Daphne Cocorum
pontica
collina
Dielytra spectabilis
Doronicum
Dabœcia polifolia
Dodecatheon obscurum
elegans
Media
Jeffreyii
giganteum
Dianthus pallidiflorus
Caryophyllus
Dryas integrifolia
octopetala
Dactylis hispanica
Erica mediterranea
arborea
Erodium hymeoodes
Erinus alpinus
Epimedium grandiflorum
Elæagnus angustifolius
Euphorbia Characias
procera
palustris and others
Fragaria vesca
elatior
Fedia cornucopiæ
Fabiana imbricata
Galium
Galatella incana
Gentiana verna
Globularia vulgaris
cordifolia
Gorse
Geranium Wallichianum
Geum repens
coccineum
macrophyllum
heterophyllum
Genista præcox
prostrata
pilosa
Scorpius
Galeobdolon luteum
Gilia tricolor
Halesia tetraptera
Honesty
Helianthemum nummularium
vulgare
tomentosum
armatum
Hippocrepis helvetica
Hyacinthus pumilus
Iberis Durandii
Tenoreana
Garrexiana
gibraltarica
Pruiti
gargauica
Indian Pink
Jonquil
Iris delicca
floreatina
Guldenstadtii
germanica
livida
pumila
Swertii
tenuifolia
missouriensis
Kalmia glauca
Kerria
Lamium Orvala
Lagurus ovatus
Ligustrum ovatum
Ledum thymifolium
Leucojum æstivum
Linum pulchellum
flavum
fruticosum
africanum
Lithospermum prostratum
orientale
purpureo-cæruleum
Lychnis Viscaria
dioica
Lilacs
Libertia ixioides
Lupins
Limnanthes Douglasii
alba
Matthiola græca
Mimulus effusum
Muscari amethystinum
Myosotis alpestris
sylvatica
Mimulus
Magnolia Lennè
Marigold
Mexican Clover
Melica nutans
Malva campanulata
Nepeta Glechoma
Narcissus poeticus
biflorus
Bulbocodium
Nemophila var.
Nonea flavescens
Nymphæa alba
Orchis mascula
morio
carminata
latifolia
militaris
Ornithogalum umbellatum
Orobus vernus
tuberosus
lilacinus
sylvaticus
Othonna cheirifolia
Ouobrychis montana
Pernettya speciosa
Polygonum historta
Polygonatum multiflolia
vulgare
Primula farinosa
cortusoides amœna
sikkimensis
Pentstemon Scouleri
Fendleri
Phlox umbellata
Nelsoni
procumbens
frondosa
canadensis
Potentilla alba
Dombeyana
alpestra
chrysantha
rupestris
Peonies
Pansies
Pinguicula grandiflora
Pulmonaria maritima
azurea
mollis
angustifolia
sibirica
Pyrethrum roseum
Platystemon californicum
Polemonium cæruleum
grandiflorum
villosum
nanum
Ribes sanguineum malvaceum
Ranunculus gramineus
aconitifolius
plataniifolius
Rhododendrons
Rockets
Rose, Boursault
Stellaria spinosa
Symphytum asperrimum
Saxifraga Mawiana
icelandica
Guthrieana
affinis
umbrosa, and thirty-four others
Spiræa ulmæfolia
salicifolia
flexuosa
prunifolia
Scilla patula
verna
nutans
campanulata
Solidago aurea
Smilacina stellata
Sieversia triflora
Solanum crispum
Saponaria calabrica
fastigiata
ocymoides
Silene pendula
Salvia verbascifolia
Symphiandra Warnerii
Sesleria cærulea
Smelewskia alpina
Sedum rupestre
hispanicum
Trollius europæus
napelliflorus
Tulips
Trillium grandiflorum
Thermopsis laburnifolia
Trifolium pratense
Uvularia puberrula
grandiflora
Valeriana dioica
celtica
sambucifolia
tripteris
tuberosa
Veronica pallida
pectinata
circæoides
Viensseuxia græca
utriculata
Viola cornuta
montana
lutea
palmensis
Viburnum macrophyllum
Wallflowers
Weigelas
Waldsteinia geoides

—P. N. W.

BRIDAL ORANGE BLOSSOMS.

I think it is quite time to give up that relic of pagan ceremony, Orange blossoms for the bride, for we were charged very high for the bouquets, and there were no Orange blossoms in them; but some had other natural white flowers in them, and other bouquets had artificial ones.—Pater.

[Crowning the bride with a chaplet of flowers was and is a custom—a deserving custom—among all civilised nations. It is not a custom merely of pagan derivation, for the Hebrews in the very earliest times practised it. It is true that the selection of the Orange blossoms is of eastern origin, but that can be no reason against adopting them. They are white—emblematic of purity; fragrant—emblematic of excellence; they are in the east on the tree even when its fruit is ripening—emblematic that attractiveness may endure with fruitfulness.

It is quite true that from Covent Garden florists bouquets containing Orange blossoms are not always obtainable, for a good authority informs us that "When Orange blossom is very dear and scarce, and we have cheap wedding orders to execute, we use the blossom of the shrub Syringa as the nearest approach to it in nature. We are likewise obliged to resort to imitations of Orange blossom in hard wax, in leather, and also in paper, all of which are perfumed, and made to bear so close a resemblance that we do not wonder people mistake them. Still, I do not think any of our principal bouquet-makers would venture to use them without stating what they were."]

Marquis of Lorne Cucumber.—This was introduced by Messrs. Sutton & Sons this spring. It gained the first prize at the Reading Horticultural Society's Show on Thursday last. The specimens, which were very handsome, and only eight days old, measured over 2 feet in length, and were grown by

Mr. Charles Higgs, gardener to Miss Crawshay, Caversham Park.

JUGLANS RUPESTRIS (The Small-fruited Black Walnut).

Near Austin, and northward from here throughout a large portion of Western Texas, this tree grows along the gravelly borders of streams. It is of low, spreading habit, rarely more than 2 feet in diameter, with a height of from 40 to 50 feet. Bark of the trunk and larger limbs dark grey and slightly furrowed, the smaller branches smooth and rather slender. The wood is very similar in appearance to that of the common Black Walnut, but is harder and finer grained; whenever large enough being excellent for furniture, and susceptible of a high polish, being more beautiful than the common Black Walnut. Leaves from nine to thirteen-paired, generally opposite, but sometimes alternate towards the terminal one; the midrib and leaf-stems somewhat pubescent; rachis not channelled above. Its fruit is globular and has a long style; the entire fruit, with the husk, being only about 1½ inch in diameter. The shell is very thick and hard, kernel small and edible, but of very little value in a country abounding in Pecans, which are superior to it in every respect.

This species of Walnut was first discovered, a few years ago, by Dr. Englemann, of St. Louis. It is thought by some to be a mere variety of the common Black Walnut (Juglans nigra), to which it has a striking resemblance. It is hardly worthy of cultivation, because its fruit is of little value. In general appearance it is similar to both the Pecan and Black Walnut, both of which are more profitable for cultivation, because they grow larger and have more valuable nuts, and also they are fully equal to it for ornamental purposes, hence the Juglans rupestris will be rarely grown except in arboretums. The largest trees we have found of it were only 2 feet in diameter, and such specimens are very rare.—(*American Gardener's Monthly.*)

MR. W. PAUL'S EXHIBITION OF ROSES AT THE CRYSTAL PALACE.

Two years ago Mr. William Paul, of Waltham Cross—and the name of Paul in our time, and long after, will ever be associated with the Rose—made the bold experiment of holding an exhibition of Roses from his own nurseries. Like a skilful general he had well considered his resources, well trained his forces, and marshalled them in proud array on a position of his own choosing; he invited no contest, sought no victory; he merely wished to hold his own. Bravely he did it then with some three thousand warriors, and bravely he has done it again with an equal force.

Friday last was the opening day of this grand display held in what is called the Garden Corridor of the Crystal Palace, a favourite resort of those who wish to view the terraces and fountains, and the beautiful landscape of hill and wood in the background. There with exquisite taste are arranged the grand specimen Roses which form the leading feature of the exhibition, together with the ornamental-foliaged plants which serve to tone down colour and to give variety to the arrangement.

On entering the exhibition, to the left are Roses, to the right masses of bedding Pelargoniums, of which more hereafter. Turning at right angles we come to the main portion of the show, which, as already stated, mainly consists of Roses, and such Roses as are only equalled by the best specimens at the best exhibitions. Among them, especially at the back of the 300 feet of low staging on which they are placed, are set standards of the remarkably effective white-variegated Acer Negundo, Ivies such as the large-leaved Hedera Rægneriana, the small-leaved doneraileuse minor, and taurica, another beautiful kind; while nearer the front are small plants of some of the best of the white and yellow variegated Ivies interspersed among the smaller pot Roses; likewise the beautiful golden-leaved Oak, Quercus Concordia, baskets of Echeverias, Golden Feather Pyrethrum, variegated Euonymus, and a variety of other subjects. Among the larger specimens are numerous splendid plants both for size and perfection of bloom, and noticeable among them Alba rosea, La France, Madame de St. Joseph, Beauty of Waltham, President, Anna Alexieff, Baroness Rothschild, Madame Clémence Joigneaux, Marie Baumann, Antoine Ducher, Maréchal Niel, Mdlle. Annie Wood, and many more; but we tire at the repetition of names of old favourites (though Rose-growers never seem to do so), and will merely say that all old favourites are worthily represented. There are, too, several new comers worthy of notice, but no Roses, whether old or new, more so than Princess Beatrice and Princess Christian—the former large and full, pink, with a bright centre, a splendid cupped flower; the latter a Rose of the largest size, of a bright glossy rose colour, and which has before been several times shown by Mr. Paul in magnificent condition. Duke of Edinburgh is another star of the first magnitude; its rich crimson-scarlet colour, let alone the great size of its blooms, would alone claim for it a prominent place. Comtesse d'Oxford, Paul Néron, and Marquise de Castellane also deserve special mention. There are likewise stands of beautiful cut blooms, both of new and old Roses, placed at intervals along the front of the staging.

The Pelargoniums have before been passingly alluded to; they form a very select lot, including as they do Dr. Denny's fine seedlings which Mr. W. Paul has acquired. Among these, Iauthe, crimson, with a beautiful tinge of violet; Wellington, crimson scarlet, are remarkably fine. The white variegated white-flowered kinds are well represented in Waltham Bride, Avalanche, and Virgin Queen; the bronzes in Danäe and Waltham Bronze, and the Golden Tricolors in Lady Dorothy Nevill.

After what we have said we need scarcely add that we heartily commend Mr. Paul's exhibition to the public, most thoroughly appreciate the excellent taste of his arrangement, and admire the spirit with which he has carried to a successful issue a task which, even for his energy and resources, must have been a severe one. It is a striking proof of what our great nurserymen can do when they put forth their strength. The horticulturists of this country have just reason to be proud of such exhibitions, of the productions of our commercial and private gardens, and the rapid growth among us of a taste for horticulture. We understand Mr. W. Paul's exhibition will be continued throughout this week, perhaps longer.

DEATH OF MR. HOYLE.

G. W. Hoyle, Esq., of Reading, the very successful raiser of Pelargoniums, died suddenly on Sunday morning at an advanced age. More than thirty years since Mr. Hoyle was a successful raiser. Few are living who remember his Pelargonium Crusader, the rage of that time, yet many know and appreciate his recent productions, which are always foremost on the exhibition stage from their free-blooming habit. Mr. Hoyle was a good cultivator, with exceedingly good taste.

NOTES AND GLEANINGS.

Late Frost.—We had a severe frost here on the morning of the 18th inst. It has cut down many acres of early Potatoes. I am also afraid the Strawberry blossom will be injured; this will amount to a serious loss in Holt (a village which the river Dee divides from this), as many hundreds of acres are grown there, and from thence the Liverpool and Manchester markets draw their chief supplies. The fruit crop is, I am sorry to say, far below the average. Pears and Apples are much better in some districts than others, but about here the young fruit has nearly all fallen off; the ground under the trees is completely covered with them.—T. J. H., *Farndon, Cheshire.*

—— Early Vegetables.—Nearly forty tons of new Potatoes have now left the Scilly Islands, principally for London, and the same vegetable is being sent away from Penzance at the rate of five to six tons per day, but vegetables in Cornwall have not been so scarce and dear for many years. Cold winds and heavy showers of sleet and hail continue, and scores of acres of Potatoes in the Penzance district, which, with an ordinary season, would have been in the market a fortnight or three weeks ago, are nothing like ready to take up. A large breadth of Potato ground in West Cornwall will be very unprofitable this year; several acres have been ploughed up, so hopeless had the crops become through cold, and rain, and frost. Early Cabbages are also a serious failure in most localities, and even a few leaves cannot be had under 2*d.* London has received most of the Cabbages worth having, and remarkably high prices have been readily given by agents for Covent Garden. Old Potatoes, very indifferent, are selling in Cornwall at 1*s.* 3*d.* and 1*s.* 4*d.* per gallon.—(*Times.*)

—— Although Mr. Lawes has ceased to be a manufacturer of artificial manures, it is not his intention to abandon those investigations which have rendered him famous. He has announced that it is his intention to devote the remainder of his life, even more closely, to scientific agriculture; and, furthermore, that he purposes to place in trust his laboratory and

experimental fields, with the sum of £100,000, the interest of which, after his death, will be applied to the continuance of the investigations which have been carried on for so many years at Rothamsted. By this act of munificence Mr. Lawes lays not only the present, but also future generations of agriculturists under obligation to him, and Rothamsted will thus continue to be the centre from whence the light of science will be shed on the culture of the soil.

—— Sunflowers as Disinfectants. — Attention is being directed to the sanitary advantages of cultivation of the Sunflower in malarious districts. Many facts have been adduced to show that the Sunflower has the property of purifying air laden with marsh miasm, absorbing a great quantity of moist and noxious gases, and exhaling an ozonised oxygen. Moreover, the French Sanitary Commission has lately pointed out that the Sunflower is a most useful plant; it yields about 40 per cent. of good oil, the leaves furnish an excellent fodder, and the stem, being rich in saltpetre and potash, makes a good fuel.

EDWARDSIA GRANDIFLORA.

It is well for the interests of horticulture that the merits of old, long-neglected plants seem likely to be recognised by the inquirers after something that is novel, and some of these plants seem all but lost, being met with only in a few of those old-fashioned places where the cultivation of the present day differs but little from that of fifty years ago. It is well there are such places, or where would many of our old plants be met with? Fortunately there are some plants not easily lost, owing to the great amount of hardship they will endure ere they fairly give in, and such a one is the subject of these notes.

Edwardsia grandiflora, a shrub, and native of New Zealand, was introduced into this country before the beginning of the present century, yet it is seldom seen, certainly not so often as it deserves to be. It is much hardier than the Veronica we have from that country, and the beauty of its foliage, as well as the peculiar character of its bloom, has certainly been overlooked by those who search for and appreciate the ornamental.

With us Edwardsia grandiflora ranks high as a plant to be grown against a wall. One that has been growing for some years against a wall with a south-west aspect and fully exposed, has never been in the least injured by frost, and blooms profusely every spring. It does not lose its last year's foliage until about the time the flowers make their appearance. These are produced on the almost naked stems, or rather spurs, in clusters, and are of a rather dull yellow, but the individual flowers are amongst the largest of the Leguminous order, to which the plant belongs. They resemble in some measure a huge beetle, and are leathery-looking. The foliage is pinnated, and the growth of the plant is firmer than that of the Swainsonia, Indigofera, Cassia, and Clianthus, to which it is allied; it resembles Sophora japonica more than any of them, and I am not sure that it will not be found as hardy. With us it has only been tried against a wall, where its growth has been more sturdy than rapid, its roots having to contend with Roses, Ceanothus, Myrtles, &c., for its supply of food. It grows faster than Garrya elliptica under some circumstances. It did not suffer from the March frosts like Wistaria sinensis and the Yellow Banksian Rose growing near it. The blooms of the Wistaria were killed by the frosts on March 23rd and 24th, excepting a few under the shelter of a projecting cornice, and the Banksian Rose has bloomed badly as compared with former years. The frosts of March and subsequently, have done much harm to flowering shrubs. Even the hardy Lilac seems much smaller than usual, and a Paulownia imperialis that gave promise to furnish an abundance of bloom, had them all cut off by the frost, so that the half-swelled bloom-buds remain the same size as they were when frozen, but are all killed.

Edwardsia grandiflora.

This Edwardsia, by its short-jointed hardwooded appearance, is a plant likely to withstand the most severe of our winters, for I do not see a tip of any of its shoots of last year's growth unripened. The general character of the plant is that of a deciduous flowering shrub that may be as hardy as the Judas Tree (Cercis Siliquastrum), or Forsythia viridissima, more hardy than the Pomegranate, and well deserving a place where it is necessary to cover a wall of moderate height. Our plant is limited to a wall 11 feet high, otherwise I dare say it would soon be much higher. The foliage is not so liable to attacks of red spider as the Clianthus, but when the latter is in good condition it presents a healthier appearance. The Edwardsia has seeded with us at Linton, the seed-pods being, like the flower-buds, very singular in structure, resembling in some faint degree a pair of spectacles. There are sometimes three or four seed-pods on the stalk, often much wider apart than in the specimen figured.—J. Robson.

GROWING FERNS IN CASES.

I agree with much that "T. B." says in the Journal of the 16th inst., and I do not think that failure arises so often from want of management as from attempting to grow Ferns that will hardly at any time grow in cases, sometimes from there not being heat enough, at other times from the Ferns not liking the damp state of the air in the case, and very often from the case not having plenty of water, for if the weather is warm, frequently the case seems to be full of steam when the earth is quite dry. In a case which I have had since 1856, there are two or three of the Adiantums, Asplenium marinum, and Pteris serrulata, and this case, except for giving water or to take out dead Ferns, has never been opened, I may say, for ten years; yet

these Ferns have grown and seeded until the case became too full. Last spring (1871) frost killed very many of them, as the case was in a room without a fire.—CAMJEE.

PUTTERIDGEBURY,

THE SEAT OF G. SOWERBY, ESQ.

ABOUT four miles to the north of the rising town of Luton is Putteridgebury, the seat of G. Sowerby, Esq., a place whence the readers of THE JOURNAL OF HORTICULTURE have derived so much instruction from the pen of the worthy garden chief, Mr. Fish. The situation of the mansion and grounds is elevated, the road from Luton (with which there is excellent railway communication) rising nearly the whole way, and showing to the traveller the extent of this thriving country town, in which the blue-slated roofs at once serve to distinguish the modern from the ancient houses, which are mostly covered with flat tiles. The town, like many others, lies in a valley, and I am not sure that such a site is not the most befitting in a district like this, where water is scarce. Pursuing our journey we perceive we are in a district where most of the farming land is in tillage, and Wheat, Barley, and green crops would seem to be the order of the day, as the rising ground enables one to see a large extent of country. The fields are of medium size, divided by neat low hedges; here and there groups of trees, or rather plantations, in suitable places give that clothing to the scene without which a landscape would be naked-looking. In certain places trees grouped in greater number indicate the position of some gentleman's seat. A turn of the road shuts out for a time much of the view of the valley of Luton, and we find ourselves on the summit of one of those irregular ridges, or rather chains of eminences, on which Putteridgebury stands.

Putteridgebury is in the parish of Lilley, and county of Herts, a parish recorded in the Domesday Book, with a notice of the Anglo-Saxon who was the proprietor in Edward the Confessor's time. We have no doubt that Putteridgebury was then a named locality, for the name is Anglo-Saxon, meaning literally "the residence by the hill-path." It is spelt in early documents Putteriggebury and Poderichebury.

The earliest notice of the manor of Putteriggebury was when it was possessed by Thomas Cherley, Esq., in 1408. He died in that year, and his widow being tenant of it for life, and marrying Sir Thomas de la Pole, he became its tenant. On her death it returned to the Cherley family, and we next find it possessed by one of them, who was married to William Darell, of Littlecote, in Wiltshire. This was in the reign of Edward IV. In 1494 it had come into the possession of a widow of one of the Darells, who held it "by fealty and one pound of pepper and another of cummin." The Darells retained it until the reign of Henry VIII., when they passed it to Richard Lyster, eventually Chief Justice of the King's Bench, who in 1525 granted it to one of the Westmoreland Docwras. By marriage it passed in 1700 to Sir George Warburton, Bart., who sold it with the manors of Huckwell and Lilley in 1729 to Lord Charles Cavendish, who resold it 1738 to Sir Benjamin Rawling, whose coheirs sold it in 1788 to John Sowerby Esq., and his family have since continued its possessors.

The house was built by John Docwra in Henry VIII.'s time.

Entering the park, and pursuing a well-kept piece of carriage road, I soon found myself in the vicinity of the mansion, and after a hearty greeting and welcome from my friend Mr. Fish, I proceeded to take a brief survey of this well-kept place.

The mansion of Putteridgebury is one of those commodious dwellings in which internal comfort has not been sacrificed to outward show, although it is not deficient in the latter respect. The absence of stone in the neighbourhood, and the absence of railways, also, when it was erected, no doubt led to its being built of brick and cemented. The difficulty of making a brick house a dry one, at one time led to many well-built residences being coated with cement, which was thought to be a certain preventive of the bricks being saturated with moisture, and Putteridgebury is one of these. The fresh appearance which a coat of paint gives such a dwelling makes it stand out well against the mass of foliage by which most country houses are surrounded, so that in the distance mansions of this kind present a more imposing appearance than those either built of brick or stone when not so coloured. Putteridgebury is commandingly placed on a nearly level piece of table land. The view over the valley in which Luton is nestled is both varied and extensive, and in other directions as well several objects of interest are brought before the observer. In one place an Ivy-clad church is seen amongst trees, in another a quiet country village is just visible, while smiling corn fields, or, after they are cut, large breadths of green crops, present themselves to view in all directions, indicating an amount of rural industry which becomes more evident on a closer acquaintance with the population, when it will be learned that many of the female members of the family from a very early age are engaged in that calling which, perhaps, more than most others has suffered from the caprices of fashion, the platting of straw. There has been many a change of fashion since the days of the old Dunstable bonnets, but Luton, having eclipsed Dunstable, is still the centre of a large trade in plait.

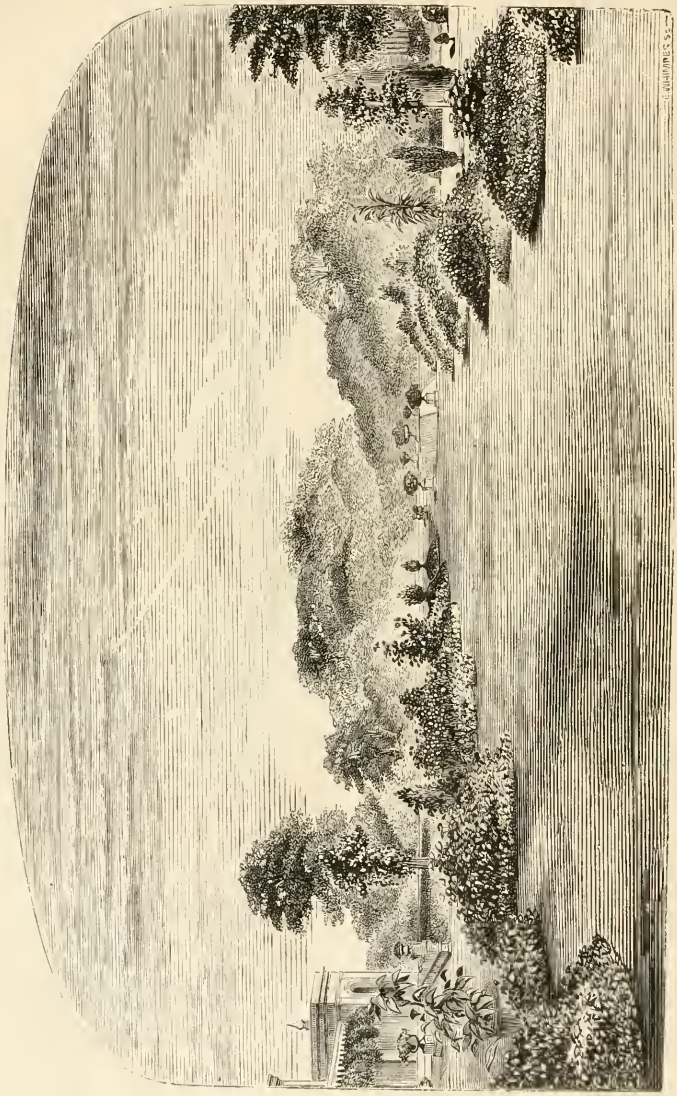
The carriage entrance to the mansion is on the north side; the east, south, and a portion of the west sides front the dressed grounds, and at the north-west corner are the offices, occupying a considerable space. Then we reach the eastern wall of the kitchen garden, a parallelogram, with good walls all round, those running east and west being the longest. To the west of the kitchen garden is the frame ground, where a series of cold and partially heated pits are made to contain all the requisites for the flower garden. Southward of this kitchen garden, as well as southward of an interesting corridor and conservatory which unite the south-east corner of the kitchen garden with the mansion, is all dressed grounds, which also extend some distance farther west than the garden itself.

Beginning with this corridor, at the time of my visit an artist in rockwork, Mr. Pugh, of London, was engaged in converting the commencement of the corridor into a fernery, and I have no doubt when finished and planted it will be an interesting place, communicating as it does directly with the mansion. Following the corridor, which takes a somewhat curved direction, I reached the conservatory, but as it was being painted during the fine weather of last September, of course all moveable plants were set outside.

Leaving the conservatory I next entered the flower garden proper, which may be divided into three or rather four distinct parts, the first being an Italian garden in a sunk panel; the second a series of circular beds about 9 feet in diameter, each placed in two rows about 30 feet apart from centre to centre, and something less than that, say 24 feet apart in the row. This for the sake of distinction I will call the avenue of beds. Thirdly, there are two fine ribbon borders of great length, each 8 or 10 feet wide. Lastly, there are a great number of other beds and borders, which cannot be said to form a uniform whole, but which are, nevertheless, each of them entitled to notice. This class of bedding I shall call the promiscuous beds, for they are scattered in various places, and are certainly as essential as any of those previously described. The Italian garden, which lies to the south of the mansion, is a square of perhaps 200 feet, sunk some 3½ feet below the terrace walk next the mansion, and, in fact, the high ground which surrounds it, for it is enclosed on all sides by turf banks of uniform slope, giving the depth above stated. A fountain and basin occupy the centre. The rest is a group of flower-beds of a simple pattern on grass. The number of these beds is about eighty—too many in my estimation, as there is too little space between, but at the time of my visit they were all well filled. I had not time to go into details. Passing on to the next series, the avenue of beds; there being more space for these to show themselves, they present a better appearance. I will not attempt to describe them in detail, but may state that they were planted in pairs, and the plants used were so skilfully arranged as regards height, that the general outline of each bed was somewhat in the shape of a low tent—for a tall pointed plant like a Fuchsia forms the centre, next come others much shorter, while still dwarfer plants are placed near the edge. The neatness and regularity with which this was done reflected great credit on Mr. Fish, who has two great difficulties to encounter: First of all he has but little room in which to winter and prepare his plants; and secondly, he has to contend against the evils of planting the same beds year after year without being able to renovate the soil. Yet the beds looked well, not a blank spot was visible, and the avenue of beds pointing in a south-westerly direction formed one of the prettiest features of the place. They commenced near to the Italian garden previously described, and terminated in some shrubbery that enclosed a fernery and other rustic work.

I now come to the ribbon borders by the side of the south wall of this kitchen garden. One of these may be called the wall border, being next to it; the other is on the opposite side of a walk, and having its outer side on the turf of the pleasure

ground. The wall in a great measure is covered with Tea Roses and other choice climbers, with about 2 feet vacant space at the foot of the wall to allow of their being dressed and attended to. The remainder of the border was planted in straight lines this season; on some former occasions Mr. Fish has had it in different figures, but nothing looks better than straight lines. In the past season it was planted thus; beginning at the side next the walk, which was edged with turf



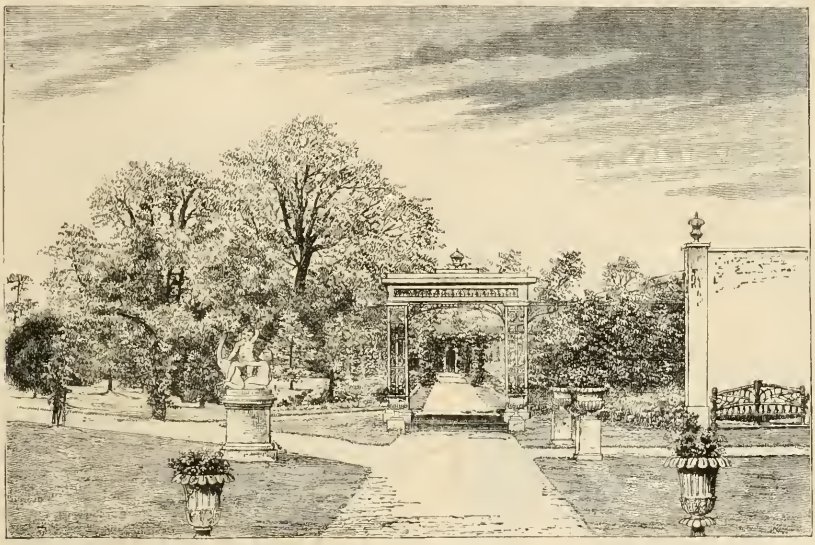
Avenue of Beds at Putteridgebury.

of the usual width, the rows were as follows:—1st row, Cerastium; 2nd, Geranium Brilliant; 3rd, Geranium Madame Vaucher, a white-flowered variety; 4th, Coleus; 5th, Calceolaria, yellow; 6th, Ageratum, the tall variety; 7th, Geranium Trentham Rose; 8th, Gladiolus, mostly scarlet.

It will be seen from the foregoing that the intention of the planting is for the plants to rise gradually from the walk edge to the back row, nearest the wall, of Gladiolus. This they did with tolerable accuracy, and the blooming plants all looked well, and so did those grown for their foliage. I am not sure

whether double rows of the plants, and only one-half the kinds enumerated, would not have been better, but this may have been practised in some former years. The border on the other side of the walk in a great measure resembled the above as regards the planting of the first five rows, which were repeated in an inverse way on the other side, so that both sides were alike, the sixth, seventh, and eighth rows being of course omitted. This also looked well. The same care in skilful training had maintained that uniformity so essential to this mode of planting, that nothing was wanting to entitle it to the highest honours if prizes had had to be awarded.

We now come to the planting of that heterogeneous class of beds which form a feature in other places as well as this, being, in fact, links connecting one kind of gardening with another. These beds or borders were of various kinds, now assuming the form of a raised bed, a band of Ivy 2 feet high surrounding a bed on which a mass of the most showy of all the bedding plants were growing and flowering in great luxuriance —in fact, a huge pan of flowers is the nearest comparison I could make. Other beds were somewhat smaller, yet elevated in the same way, and with a bow over them covered with climbers—these were basket beds, the planting being the same as in the others, perhaps; while in some beds the little elevation given to them was by rough stones, on which some hardy plant, as the Saxifraga hirta or a Sedum, was allowed to luxuriate as an edging. Other beds, or rather borders, were masses of shrubs, around which two or three rows of bedding plants formed a pleasing band, while now and then was a mixture—far too little met with at most places—of herbaceous plants. The whole showed that care and attention, even to



Arch at the east end of the Ribbon Borders.

the most minute detail, which are the source of all success, and good keeping prevailed everywhere.

Entering the kitchen garden on the west side, or rather before doing so, one catches a glimpse of the pits and other appliances in which Mr. Fish winters the host of bedding plants he yearly turns out, and one is astonished at the smallness of space at command, and a sight of this quarter at the end of April would be well worth going some distance to see. It was September instead of April when I was there, and I could only see good crops of Melons, Cucumbers, Capsicums, &c., in the pits that will hereafter have to furnish a winter home for Geraniums, Verbenas, and other plants.

Fine rows of trained Pear and Apple trees are planted on each side of a central walk that crosses it from east to west. These trees, which were 11 or 12 feet high, had been spurred-in for many years, were in the best of health, and what was of more consequence, nearly all of them were bearing good crops of fruit. I omitted to take the names of conspicuous ones, but I hope Mr. Fish will favour us with them at some fitting time, for these fruits are often so scarce that one looks with feelings akin to envy on such good crops as those at Putteridgebury. A glance at the vineries, which occupy a portion of this north wall, and a similar hurried look at some excellent Peaches in an orchard house adjoining the Grape house, and I find myself again at Mr. Fish's dwelling; and time, that inexorable tyrant which breaks up so many a friendly chat, warned me I had no more minutes to stay, so with a hearty shake of the hand I reluctantly left Putteridgebury with the perfect certainty that, if I attempted to put down what I saw, only a few of the many features of that fine place would be described.

Before concluding, however, I have one more remark to make about the contents of the flower-beds, and that is, a great number of plants are used which many at the present day call old-fashioned, and yet their superiors are not to be met with amongst newer ones. Geraniums Brilliant, Trentham Rose, Rubens, and Tom Thumb, I saw frequently used. Not a few hardy plants were turned to good account, as Sedums, Saxifrages, and the like; but newer plants had also their place. Amongst others not met with every day was a good batch of the variegated Polemonium, which many are unable to keep alive; but it will be a very difficult plant indeed to manage if Mr. Fish do not turn it to good account: I expect it will be the first thing he ever failed in.—J. Robson.

SOME PREDATORY INSECTS OF OUR GARDENS.—No. 30.

Returning to the subject of aphis life, which was under our consideration in the last paper, we proceed to observe that the remarks of Professor Dyer, quoted in the article upon honeydew which appeared in this Journal a short time since, open up

a question of some interest—namely, as to the decomposition which the juices of plants undergo in the digestive apparatus of the aphis tribes. It is a popular supposition, I think, that these creatures are something like certain pigs whose history the poet Pope has seen fit to immortalise, or the reverse of that. In not very elegant phrase he alludes to these in one of his satires as excreting the food they had just swallowed at the trough in a condition exactly resembling that in which they received it. So it is supposed that aphides give forth the sap they have pumped up in almost a pure state; but this can hardly be. A comparison of the sap of plants and the excretions of the aphides found thereupon would most probably show that a chemical change was worked, and the honeydew was not unaltered sap nor an atmospheric product, as has been fancied—at least not generally, though there may be honeydew which is not deposited by aphides. The attractive influence which the fluid ejected by the latter exercises upon ants proves, were proof necessary without chemical testing, that it is largely saccharine.

We commenced by remarking that we were about to discourse upon aphis life, but in reality it will turn out that aphis death is rather the topic; for it is necessary, by way of wholesome consolation for the afflicted gardener, greatly vexed in spirit through these tiresome though petty pests, to show that, besides birds and other enemies of a larger sort, there are many insect-destroyers of aphides. Some of these are very notice able, others carry on their work in an insidious way. Aphides are decidedly peculiar in their utter disregard of the dangers which environ them from their first start in life until they reach such a degree of maturity as they attain, which is, as already observed, far from being full aphishood in many generations. Some insects there are which, when attacked by other insects, make a bold fight of it, or at least use their endeavours to escape, but not so these soft-bodied creatures; they receive the assaults of their foes with a pusillanimity which, if they were higher in the scale of creation, would awaken pity or contempt.

Ladybirds as they are popularly called—the well-known little beetles belonging to the Coccinella genus, are generally spoken of as holding a conspicuous place amongst the insect-destroyers of aphides. No doubt they do devour many, both while they are themselves in the larval state and also when they are imagos, and the principal workers are the species bipunctata and septempunctata. It has been several times recorded that these species have been observed to follow the aphides in their short migrations from one spot to another. But with the best intentions in the world, for which one is willing to give them credit, ladybirds are often caught napping when they ought to be slaughtering aphides or laying those eggs which should produce the more rapacious larvæ. One reason of this is that these beetles are sensitive to cold, and at certain times in the spring, just as aphis life is getting prolific, ladybirds will be found creeping about in a half-torpid state, or skulking under the leaves which have been contorted by the aphides, and lazily devouring a few of these. As far as I have observed, the eggs of Coccinellæ are deposited in the spring by those insects which have hybernated, and they hatch out more tardily than those of the aphides. Some enterprising individuals have suggested that plans should be set on foot for the rearing of these beetles on a large scale, and their subsequent distribution in the particular places where they would be of most utility. But other insects, such as the Syrphi, which could hardly be thus nurtured, are much more effective foes of the aphides; and under any circumstances human efforts would be better expended in making direct onslaughts upon the aphis hosts than in multiplying their insect enemies. The latter, of course, should not be killed or disturbed.

Coccinella septempunctata.

Many persons in their strolls through the woods find themselves greatly annoyed by the pertinacious attacks of flies belonging to the Syrphina family. The larvæ of some of these feed upon aphides, and they are furnished naturally with a weapon which enables them to do great execution with little trouble to themselves. This instrument is a kind of three-forked trident, concerning the use of which a writer says—"These larvæ may often be seen laid at ease on a leaf or twig environed by hosts of aphides, and these, so far from escaping, actually walk over the back of their enemy. When disposed to feed he fixes himself by his tail, and being blind gropes about on every side as the Cyclops did after Ulysses and his companions, till he touches an aphis, which he immediately transfixes with his trident, elevates into the air that he may not be disturbed by its struggles, and then devours.

There are a good many insects which are far from agreeable in the odours they emit, but of all villainous stenches that given off by the Lace-winged fly (Chrysopa or Hemerobius Perla), and which adheres persistently to the fingers is the worst. "What a beautiful fly!" is the exclamation of the observer, who in beholding one of them resting upon a leaf admires the delicate structure of the wings, their lustrous tint, and the bright golden eyes; and this sentimental feeling which is thus called forth, is speedily changed into disgust, except in the case of a naturalist, perhaps, when the insect is grasped. It rarely flies, however, until the dusk of evening, though noticeable on plants or trees during the day, and as it is rather conspicuous, the peculiar odour with which it is endowed may have been given it for its protection. The eggs are curiously arranged on the leaves of various plants. They may be found in groups of a dozen or twenty, each supported on a slender footstalk, the eggs themselves being pearly and circular. The microscopists have occasionally thought these were fungi, but if they be kept in a box for a short time the young larvæ may be caught in the act of cautiously descending from their elevated position to the leaf below. The writer, however, and no one else so far as he is aware, has been able to catch the female in the act of oviposition. The larva of the Lace-winged fly has a pair of mandibles (or shall we call them nippers?) which are long, curved, and pointed. If we are to believe one author, a larva of this species can seize and kill an aphis in half a minute; and as their voracity is remarkable, and therefore their digestive powers proportionable, they can considerably reduce in numbers a colony of aphides into which they have been obtruded. Should a supply of aphis flesh fail, the larvæ of Perla fall to upon any small fry of the caterpillar sort which may be handy, nor do they hesitate sometimes to play the cannibal. Having attained to adolescence, each larva encloses itself in a silken investiture, and lies torpid as pupa through the winter. This larva has been called the aphis lion; it has not the unpleasant odour which is the concomitant of the imago state.

On very good authority it is asserted that ants devour aphides occasionally, nor is there anything astonishing in the fact, though the aphides serve also as the "milch cows" of the more active insects. We ourselves eat cows, as well as milk them, at least sometimes—not by preference, since we find ox-meat better. A writer in "Science Gossip," is, however, evidently wrong in thinking that the dried and empty skins of aphides to be seen on plants are necessarily signs that they have been devoured by ants or by other enemies. Nor does it seem likely that the formic acid ants emit is hurtful to plants, as he suggests. Still he may be right in his statement that ants take too much honeydew at times, and then roll helplessly about on the stem, quite "drunk and incapable," for Dr. Gray writes—"I know that ants do get drunk. They will pass up the stem of Prunus Laurocerasus, and drink the secretion from the gland on the petiole, until they get so queer that they cannot find their way down again." For their own benefit, and from no kindness to the aphides, ants have been observed to guard a colony of aphides from the predatory visits of the tenants of other ant hills. They also nurture them in their hills during the colder months, and Kirby has given an interesting account of the proceedings of the common yellow ant, which he calls the greatest cow-keeper of the family. He found that during the spring the eggs of aphides (chiefly those of A. radicum), are watched over with great care by the ants, and placed in the sun at suitable times. But for all that, there is still probability that some species of ants occasionally devour aphides, which may be a slight set-off against the injuries we have to charge ants with committing in our gardens.

Various two and four-winged flies of the Hymenopterous and Dipterous orders make aphides their special food. One of these is distinguished from its coadjutors by the cautious way in which the larva goes to work upon its aphis victims. Only a single egg is deposited by the parent fly on each aphis, and when this hatches out, the larva feeds very comfortably in the body, which swells and turns brown as the aphis dies. But this dies, unfortunately, before the feast of its parasite has come to its conclusion; so its tormentor, to prevent the carcase being wafted away by the wind, cuts a hole through the integu-

ment, and secures its prey by a silken cord to the object on which it died. From some recent researches it appears that some of the aphidii which are parasitic upon aphides, and which may often be seen in summer running about, and diligently plying their antennæ to aid them in their selection, are themselves frequently the prey of a still smaller insect foe.

It is important for the pomologist to remember that in the spring the leaves of such trees as the Cherry, Peach, and Nectarine need to be watched, lest they should gradually be overspread with an infesting host of aphides. From some observations communicated to the Entomological Society, it appears that A. Rumicis and A. Persicæ, which both frequent the Peach and Nectarine, are generally plentiful in a spring or summer which has been preceded by a warm damp autumn without winds of long prevalence. Some, on the other hand, it should be stated, assert that moisture does not favour the development of aphides, and *bonâ fide* instances have been given of the occurrence of some species in profusion after, or during dry and windy weather. McIntosh, for the destruction of aphides on out-door fruit trees, very strongly advocates the combustion of coal tar or naptha on a still day. This is carried from tree to tree in an iron ladle or larger vessel, and he recommends a copious syringing the day following with plain water. Others, however, will prefer the application of tobacco in some form, or some invaluable and largely advertised "compound," and there are certain of these really good, though their announcements may savour of quackery.—J. R. S. C.

WORK FOR THE WEEK.

KITCHEN GARDEN.

During showery weather, such as we have lately experienced, it is difficult to keep down effectually the seedling weeds; no sooner does the bright sunshine tempt one to cut them up, than down pours a shower and starts many of the tenacious living things into renewed activity. To remedy this it is found an excellent plan, after hoeing through such crops as Onions, Carrots, and Parsnips, to choose a fine, bright, sunny morning a day or two afterwards, and go over the whole with a long-toothed iron rake; the disturbance generally effects the desired end of killing the weeds, and is, moreover, of great benefit to the crops by scarifying the surface, and throwing it open to receive the full benefit of atmospheric influences. *Asparagus* beds in their prime may have every shoot cut until the middle of June. "Sprue," or very small Asparagus, may be permitted to grow. This will hardly prevent the development of the dormant buds. See to the sowing of Cape and other autumn *Broccoli*. Sow plenty of *Sweet Basil, Savory*, &c., on a warm border of light rich soil. Let *Celery* plants in all stages have due attention as to pricking-out, watering, stirring the soil, &c. Watering, above all, is a most important point. It should be borne in mind that Celery will grow in a ditch. *Capsicums* may be planted under the fronts of vineries or in other warm situations. Trenches filled with some fermenting material should be in readiness for *Cucumbers;* expose the plants rather freely to light and air to prepare them for planting under the protection of the hand-glasses. Prick out late *Cauliflowers*, and keep all seedling crops of this kind well dusted with quicklime. Sow *Dwarf Kidney Beans* for a succession, and transplant those that have been forwarded, if not already done. Keep up successions of *Spinach*. Sow another good breadth of *Turnips*, and thin out those advancing. Endeavour to keep them in a healthy, quick-growing state, which is one of the best preventives against the early ones running to seed. *Tomatoes*, if hardened off, may now be planted out; the blanks on the walls are the most suitable places. Plant them on raised mounds, which will have the effect of reducing their grossness.

FRUIT GARDEN.

Peach and Nectarine trees affected with green fly, and curled or blistered leaves, should be well syringed with strong lime water from a garden engine. Continue to nail-in the young shoots of all kinds of fruit trees as they become sufficiently advanced, and keep the finger and thumb at work amongst superfluous shoots. Give the Strawberry beds a final stirring, and have some material at hand for laying about them to prevent the fruit from getting dirty. Straight wheat straw is often used. Keep a number of figure-4 traps constantly set about the beds, as there are no greater destroyers of Strawberries than mice. Vines on walls or buildings must be attended to as regards disbudding, stopping, &c. Apricots must be well examined for the grub.

FLOWER GARDEN.

Roll, mow, and clip the edgings of grass lawns once every ten days, and use the daisy rake at intervals. Do not neglect to stir the ground after the heavy battering rains. Thin out annuals; stake plants in the borders as they grow; remove all decayed leaves and flower-stems, and everything offensive to the eye. Attend to minor things in the reserve garden. Continue to destroy insects on Roses. Should the weather continue dry, much care will be necessary in watering plants recently turned out in masses. All plants intended for specimens on highly raised beds should, when planted out, by all means have a hollow basin or concave surface reserved around the stem, or rather on the upper side, for a fortnight after planting; this will serve to retain the water and cause it to percolate through the soil in contact with the roots. If this is not done the water on such raised ground runs off, and in doing so produces a glazed or puddled surface, under which no plant will thrive until the crust is broken. If not already done Dahlias ought now to be planted out; at the same time their supports should be put in so that the roots may not be injured, which would probably be the case if delayed to a later period. Water and mulch the surface of the soil round the roots.

GREENHOUSE AND CONSERVATORY.

The turning-out greenhouse plants requires some forethought. Although it may not be desirable to turn out some of the tribes so early in the season on their own account, it is at least so in many establishments in the country, in order to carry out without impediment the forcing of fruits and other matters necessary for the supply of a family. In this respect country gardens differ much from gardens round the metropolis. In the latter, display is the principal point; in the former, display, although not altogether unheeded, is sometimes obliged to give way to more substantial matters. The first step is to provide a proper situation, and one scarcely secondary is to secure a sound bottom on which to place the pots. When the least suspicion of water-lodgments exists, drainage in the first place should be secured, and the pots elevated above the ground level. I do not mean to assert that house plants must be turned out, I merely advise on the score of expediency. Plunging, we should say, should in most cases be resorted to, provided the plunging material is above the ground level. All plants with fine hair-roots, as the Ericas and Epacrises, should certainly either be plunged or double-potted—that is, inserted within an empty pot. Another great point is to classify the plants with regard to their general habits and character. No plant-cultivator would think of mixing Heaths with Pelargoniums or Cacti. After the bedding-out is accomplished a reserve stock should be immediately taken in hand, and should receive high cultivation in order to fill-up blanks the moment they occur, either in houses or in the borders. Continue to clear away exhausted specimens in order to give place to Pelargoniums, Calceolarias, Roses, and other gay flowering plants now in perfection in the conservatory. If a canvas screen is used for shading from bright sunshine, some of the Orchids in flower, especially those found to stand cool treatment, may be removed to this house for the sake of prolonging their beauty. Take all possible precautions to avoid insects, remembering that in this, as in most cases, prevention is better than cure. Stanhopeas in baskets should be well examined, or fine flower-spikes may be lost through coming in contact with the sides. Let the house have a thorough circulation of air early in the morning, regulating the amount by the warmth of the atmosphere. Remove the plants pushed-on early for autumn or winter flowering, to the cool shelves of the greenhouse, in order to harden their wood and prepare them for early blooming. See that growing Fuchsias have abundant watering. Look to the stock of young plants being forwarded in cold pits forthwith. Achimenes for late flowering may be brought on gently in such places, as well as many other plants likely to be required for autumn and early-winter decoration.

PITS AND FRAMES.

Very young stock of Epacrises, Ericas, and small New Holland plants will be best in a pit or frame, placing the lights to face the north. The glass must be clean-washed and the pots elevated above the ground level on ashes, or, what is better still, on tiles; those used for malt-kilns are best adapted for the purpose, as they permit the water to pass freely. Expose Zinnias and other tender annuals entirely night and day, by

removing the lights and covers. Plants that are kept to succeed Tulips, Ranunculuses, &c., next month, should have plenty of room given them. Attend to air-giving, watering, and shading. The late-struck plants also require attention; they will come in very useful by-and-by to fill-up vacancies in beds.—W. Keane.

DOINGS OF THE LAST WEEK.

KITCHEN GARDEN.

There has been a fine change in the weather, but up to the 25th frost every morning; still, the weather being dry, we do not think it has done any harm.

Our chief work has been protecting from vermin, and Dutch-hoeing among advancing crops, so as to cut off all weeds, and leave the surface soil open.

Jerusalem Artichokes may still be planted, and excellent they are when well cooked. We are surprised that the lovers of game, especially pheasants, do not plant every open space in their woods with this Artichoke, as, besides the cover the tops would yield, the roots are eagerly sought after by pheasants not too highly fed. The tubers to us are not to be despised, but we would never taste one if we could get a nice floury Potato, though changes are pleasant.

Globe Artichokes.—For a continuance of table supply we recommend planting a row every season. If strong plants are turned out in March and April, they will throw up their heads late in autumn. When we do not so plant we select a row or two, and give them more surface-manuring and manure-watering, so that they may come in later. In dry summers nothing adds more to the crispness of the heads than a good watering through a syringe, or with liquid manure.

Broccoli, &c.—We are quite vexed that some mischievous urchin has taken away the label from two rows of late Broccoli, which has been splendid—quite as good as, and supplementing, the earliest Cauliflower. The Cauliflower has been well laid out, richly top-dressed, and in the warm days had a fair allowance of sewage water. In small kitchen gardens the great object is to supply the best vegetables and have continuous successions. Lately we had a visit from an old gardener. He was not sure whether he was seventy-six or seventy-eight, but he was hale and hearty, and one of the objects of his visit was to find ont if we practised the system of successions we had talked to him about eight years ago. Well, he would see our successions of Cauliflower, Onions, Cabbages, &c., and he gave us this announcement—"It is all folly to glut people." Anything presented in too large a quantity and too often is sure to be despised.

Potatoes.—Those forced and protected have been very good, and showed no signs of disease. Those on banks and borders out of doors had the soil much consolidated by the rains, so we used a light steel fork to stir the soil, and will earth-up ere long. We have tried almost all modes, and now we find in every way an advantage in a slight earthing-up. Where ground is scarce other crops can also be coming on in the furrows. We tried Potatoes on the flat for years, but we had not such fine tubers, and some of the best were apt to be greened from being too near the surface.

FRUIT GARDEN.

Strawberries.—Since the sunny weather our Strawberries in pots have been well coloured and high flavoured. With air and sun there is no reason for the statement that forced Strawberries are never equal to those gathered from the open ground. The reverse is the truth when the conditions are favourable. Granted that after a fortnight of dull weather fine-looking Strawberries are insipid in houses, what is the value of their flavour out of doors after ten days of dull drizzling weather? We have had all our rows and beds out of doors well dressed with soot and lime. The out-door crop looks very well—abundance of bloom, and only one here and there touched with the frost. But for the strain in other departments we should have covered all our Strawberry ground with stable litter, well shaken before it was used. Of course clean straw is better, but the litter does very well, as the first shower thoroughly washes it, and after the ground is well soaked the litter keeps the moisture in. We have tried many modes—sticks and strings, tiles, &c., but the litter after all is the cheapest where it can be had from the stable for nothing. Where litter has to be bought, the next cheapest and most effective mode is to fasten some little sticks along the rows, and run a cord, however small, on each side; the fruit is good, and ought not to be splashed with soil or pelting rains. On the whole nothing is better than litter and straw. We have used tanners' bark, and many other things, short grass being about the least desirable, not only because the rains are apt to beat the grass into the fruit, but also because there is not enough of free drainage in damp weather, and there are generally numerous seedling weeds from the grass.

Heating with Fermenting Material.—We read the first article of last week with much interest. For four or five years we used to follow the plan largely. Then we had plenty of stable dung. When we thought of starting a house—say a vinery, we used to have a huge mound placed in the house, bringing it at once from the stable, and supplying water if necessary. For two or three weeks it was hardly safe to enter the house, as it was clouded with fumes and steam from the dung. The only thing to be cared for was to get this mound of dung sweet before the buds opened. In cold mornings we used to turn the dung over when sweet, fill the house with dung steam, and Vines and Peaches luxuriated in it. Very little air *early given* was our safety valve. We have never had better Grapes, &c., since, and when we thus forced with dung, we never had an insect in the house. In one thing we differ from Mr. Douglas: He recommends all such material to be taken out as the Grapes begin to colour; we used to allow our mounds to remain until the Grapes were cut, and not only so, but when not wanted for heat we made Mushroom beds of them, and frequently towards autumn, the same day when we eut a basket of Grapes, we would gather half a bushel or more of Mushrooms. A slight sprinkling of hay or short litter over the bed prevented that bed at all interfering with the Grapes. We are quite within bounds when we say that under these circumstances the Mushrooms would have more than paid all the expenses of forcing the Vines.

ORNAMENTAL DEPARTMENT.

Excessively busy mowing, daisy-kniving, and preparing beds. We have much to plant out next week. Let us urge on all lovers of perennials, biennials, &c., as Hollyhocks, Brompton and Intermediate Stocks, to sow without delay, and in the open ground. Such fine old flowers as Canterbury Bells, Delphiniums, &c., should not be forgotten. These will bloom freely next season. All hardy annuals if sown now will bloom freely in the autumn. Even tender annuals, as Zinnias, Asters, and Stocks, sown now will make a splendid autumn display.—R. F.

TO CORRESPONDENTS.

*** We request that no one will write privately to any of the correspondents of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely to The Editors of the Journal of Horticulture, &c.*, 171, *Fleet Street, London, E.C.*

The Gardeners' Year Book (*True Blue*).—It is still in print, and can be obtained at our office.

Derby Seedsmen (*A Subscriber*).—As there are many seedsmen in Derby, and not being spiritualists, we cannot tell who sold you the black-seeded Cucumber.

Labour for Garden (*A Constant Reader*).—You will require five hands—viz., a head-gardener, two under-gardeners, a labourer, and a handy man to see to the cows, &c., and make up his time in the gardens.

Sulphate of Ammonia (*R. O.*).—Not more than a quarter of an ounce to the gallon of water for plants in pots. Two hundredweight per acre for kitchen garden crops.

Azalea Gibsonii (*W. D., York*).—It ought to be disqualified if shown as an Azalea. It is a Rhododendron.

Select Gooseberries (*Governor H. S. S.*).—For gathering green, the following are good:—Antagonist, Companion, London, Queen of Trumps, Dan's Mistake, and Whitesmith. Red Warrington for preserving.

Rhododendron (*A Clare Subscriber*).—Your Rhododeadron flowering in the open air is R. Blandfordiæflorum, found by Dr. Hooker in the Himalayan mountains of Sikkim and Eastern Nepaul, at elevations of even 12,000 feet.

Seedling Pansies (*E. M.*).—The flowers sent to us are very fine and beautiful. We advise you to exhibit a stand of them before the Floral Committee of the Royal Horticultural Society.

Grapes Spotted (*J. F. W.*).—Your Grapes are attacked by the gangrene, called by gardeners "the spot." If you refer to our number published on the 16th inst., on page 411 you will find all we can recommend to be done.

Culture of Frame Cucumbers (*Cambria*).—The present season has been very trying for frame Cucumbers, but where there is plenty of heating material, fruit fit to eat ought to be produced long before June. We had them this year the first week in May from a two-light frame. Our practice is as follows:—Early in January we commence by throwing into a heap a sufficient quantity of fresh stable litter for the formation of the bed, and if dry we give it a good wetting. It is allowed to lie until it has acquired a good heat, and is then again turned over, putting the outside inside, and wetting it if dry. In about a week it will have heated again, and may be very hot; turn it over and wet any dry portions. In another week it will have parted with its rank steam; the object of the turnings is to cause this result, and

to give a more lasting heat to the materials after they are put into the bed which they may be at the end of January, making it 18 inches wider than the frame all round, and carrying it up 6 feet high at the back and 5 feet in front. Spread the materials out, mix them together, and beat them well with the fork as the work proceeds. This done, put on the frame and lights, and allow them to remain a week; then take off the lights, level the bed, and place a barrowful of soil under the centre of each light; keep the lights on a day or two, and then spread about an inch of soil all over the bed, leaving the rest in the centre in the form of a cone, about a foot deep, flattening the top. The soil should be dry rather than wet. In a day or two the plants may be put out; plant a good strong one on each hillock, and give just a little tepid water to settle the soil about the roots. This care in watering must be practised up to June, always using water the temperature of the frame. Care should also be taken not to plant out until the heat of the bed has been ascertained. A thermometer may be sunk in the soil 6 inches deep, and if it do not indicate more than 85° it is right, and the temperature of the frame should be 70°, and must not be allowed at any time to be less than 60° at night. Air should be given at 75°, and the frame should be closed at that temperature. It may rise to 80°, 85°, or 90°, with sun and abundance of air. The plants will need earthing-up as the roots reach the sides of the hill; but place the soil inside the frame the night previous, or when the weather is mild. In this way the earthing is to be done at two or three times until the bed is earthed all over from 10 inches to a foot deep. Good light turfy loam is the most suitable compost. The bed will need lining in a fortnight or three weeks after the plants are turned out, and the linings must be kept up and renewed, so as to maintain the temperature above mentioned. Mats or other covering must be put over the lights every night until June, and in putting them on they should not hang over on the dung, which, however, for the lining, should not be fresh, but sweetened a little, though it need not be so much so as for the bed-making. If you cannot raise the plants in a house, you will need to make up a first hotbed three weeks before the planting bed is made. A one-light box will answer very well. Then make up the other bed, so as to have it fit for the plants by the time they have grown, so as to be stopped at the second leaf. You may, however, sow and rear the plants in the permanent bed, and by sowing after the bed has attained a good heat, or in three or four days after making up the bed, you will lose but little time, or be only a few days later in cutting.

Training Plums, Peaches, and Apricots (*E.*).—The horizontal method of training will suit the Plum on your low wall. The first course of branches should be 1 foot from the ground, and the others 8 inches apart, as you propose. We do not advise this method of training with the Peach and Apricot, as the branches, especially those of the Apricot, are very apt to die off, and they cannot, with this system of training, be easily replaced. We advise you to practise the system called fan training.

Fruit Dropping off Orchard-house Trees (*An Amateur*).—The fruit which is now turning yellow and dropping off was not set. If it had set it would only have dropped off with very bad management. If your house is unheated we do not wonder at your failure, considering the long-continued unfavourable weather we had. You should keep the house as dry as possible, and ventilate freely when the trees are in blossom. We believe damp and cold to have been the cause of your failure.

Air Roots on Vines (*Y. T. W.*).—A moist atmosphere is the usual cause of air roots. They do no harm whatever to the Vine. We have an early house, in which they form abundantly every year. One season we would not touch one of them, next season we cut them off as fast as they appeared, and we did not notice any perceptible difference in the general health of the Vines; both years we cut a splendid crop of Grapes. As these aërial appendages are not very ornamental, we advise you to remove them.

Bedding Pelargoniums Grafting (*C. M. Major*).—The tall standard plants which you wish to graft with the better sorts of Zonal, Tricolor, and Double varieties, you may practise upon successfully; but we should proceed by inarching on each shoot, raising plants of the desired kinds on a stage. It is not necessary to use clay; merely tie with matting, and then cover with moss, which should be kept moist. In about six weeks the union will be complete; but first loosen the bandage, and see that the parts are united before severing. Leave a joint or two above the junction on the stock, so as to attract the sap; but all the shoots operated on should be shortened and kept from growing much, so that the sap may be diverted into the scions. The part above the scions will, as soon as the growth is complete, need to be cut off closely. You might graft them, but in this case you must keep the plants very close, employ rather firm wood for scions, and all growth must be removed from the stock. We advise inarching in your case.

Hot-water Pipes Painted (*T. W.*).—The pipes will give-off fumes for some time after painting, and it is a mistake to use paint that is partly compounded of lead. No harm will be done when the paint is thoroughly dried. Leave a little air on for a time at night, and with this we do not think you have anything to apprehend from the paint. We think the Cucumbers have perished from cold, and we do not understand your lighting a fire occasionally in a stove. To keep up the proper temperature in a stove you will need fire heat almost constantly.

Plants for South Wall (*Amateur*).—For your low south wall we advise Ceanothus dentatus, C. floribundus, Escallonia macrantha, E. glandulosa, Garrya elliptica, and Ligustrum japonicum, all of which are fine evergreens. Water well in dry weather.

Liliums Infested with Green Aphis—Calceolarias Stopping (*M. G.*).—As you cannot well fumigate the house we advise you to wash the plants leaf by leaf, and stalk by stalk, with tobacco water. This is made by pouring half a gallon of boiling water on the strongest shag tobacco, and covering it up. Let the liquid stand until cool, and then apply it with a sponge. It is well to strain before use. There is no necessity for filling-up the pots with compost once or twice a-week, though it will not do any harm as long as the roots are not interfered with; watering with weak liquid manure is beneficial. The Calceolarias are all the better of the stopping, and we should advise their being potted at once. Take them up with good balls, and place them in pots that will hold their roots without cramping. They will need to be shaded for a few days until they have become again established.

Sphærogyne latifolia (*W. H. S.*).—It is a West Indian plant, and a noble plant. Stem and leafstalks red; leaves ovate and velvety olive green on the upper surface, red beneath. We cannot say whether your Dracæna is umbraculifera from the brief description.

Siphocampylos (*M. A.*).—The plant of which you enclose a leaf and flower is evidently one of the Siphocampylos genus, probably S. coccineus, which is not treated of in our Journal. S. coccineus is a native of Brazil, and a cool stove or warm greenhouse plant, evergreen, but sending up fresh shoots from the base. The old parts should therefore be cut off after they have flowered. It is a very free-growing plant, succeeding admirably in the lightest and most airy part of the stove, requires to be well watered when growing, to have an abundance of atmospheric moisture, but in winter no more than will keep it fresh. It is propagated by cuttings, which root freely in gentle heat. A compost of two parts loam, one part leaf soil, half a part of sandy peat, the same of charcoal in lumps from the size of a pea to that of a hazel nut, with a sixth part of silver sand. Give good drainage.

Hardy Bulbs (*Cornubia*).—Leave them in the ground until the leaves turn brown, then take them up, dry, and store them. Procure Dr. Masters' "Botany for Beginners," noticed in our Journal of the 16th inst.

Narcissus (*Dudley Grundy*).—We do not know the kinds you name, but some of our correspondents may be able to give some information of N. poculiformis elegans, N. Leedsii, and N. major superbus.

Destroying Bindweed (*C. H.*).—The only means of destroying Bindweed is to fork it out, taking away every portion of the whipcord-like roots. This, however, cannot always well be practised, but whenever the ground is not under crop it is well to use the fork if the roots are deep. Its growth may be considerably checked by not allowing the top to make any headway. This will weaken the roots; but pulling it up is best.

Bedding Plants for Autumn Exhibition (*P., Subscriber*).—It is difficult to give any satisfactory reply to your query, but we consider the best six bedding plants are—1, Scarlet Pelargonium Jean Sisley or Vesuvius; 2, white Pelargonium White Wonder, or Verbena La Grande Boule de Neige; 3, Blue Imperial Dwarf Ageratum, or Lobelia Trentham Blue; 4, Yellow Calceolaria Golden Gem; 5, rose or pink Pelargonium Mrs. Upton; 6, purple Verbena J. C. Ward. It is likely these would not take—foliage plants would be wanted, therefore we name six that are the best, because the most useful:—Centaurea ragusina, Golden Feather Pyrethrum, Iresine Lindeni, Pelargonium Flambeau (Golden-variegated), Constantine (Gold and Bronze), and Princess Alexandra (Silver-edged).

Bedding Plants for Succession (*A. M. L.*).—We cannot advise you better for keeping up a bloom from May to frost than to fill the beds with the usual class of bedding plants, and after they are removed turn up the beds, add some leaf soil or well-rotted manure, and plant such subjects as Crocuses, Tulips, Narcissus, Hyacinths, and spring-flowering plants, as Alyssum saxatile compactum, Arabis albida, A. alpina variegata, Aubrietia grandiflora, A. græca, Bellis aucubæfolia, Cheiranthus Marshalli, Myosotis arvensis, M. dissitiflora, Pansy Cliveden Blue, Yellow, White, and Purple; Silene pendula, and Primulas both single and double of the following colours—white, lilac, yellow, and purple.

Insects (*T. Ashton*).—Your Holly leaves are fastened together with the web of a small spider, which feeds on flies (several dead ones being still in the webs), and which has no means of biting or injuring the shoots. We know no insect which really hurts the shoots; there is, however, a small fly, the larvæ of which make blotches on the leaves. Your other leaves were those of Iresine Herbstii. (*T. B., Leeds*).—Your Rose twigs are infested by a scale insect, Coccus hesperidum, which also attacks other wall trees, such as Peaches, Apricots, Pears, &c. The insects should be picked off at once, or the young ones will be soon hatched by hundreds.—I. O. W.

Names of Plants (*A. M. L.*).—The silky-seeded specimen is Salix caprea. The other is Fagus sylvatica heterophylla, a variety of the common Beech, and so called because its leaves are of various forms. (*M. E. K.*).—1, Staphylea pinnata; 2, S. triloba. (*F. T.*).—The red flower is Lychnis diurna, and the white one L. vespertina; the other is not in flower. Specimens ought always to be numbered. (*T. H.*).—Eryngium maritimum. The Pea flower is Orobus niger. (*L. D. S.*).—It is Primula cortusoides, or Cortusa-leaved Primrose. It is a native of Siberia, and was introduced into our gardens as long since as 1799. (*Ted, the Gardener*).—Celsia Arcturus. (*Flora*).—Pteris scaberula. It is a native of New Zealand, and should be grown in a cool greenhouse. It is propagated by dividing it in the spring. Keep it near the glass, but safe from cold currents of air. (*John*).—1, Centaurea montana; 2, Ajuga reptans. (*M. F. Halle*).—Polypodium Dryopteris.

POULTRY, BEE, AND PIGEON CHRONICLE.

MANAGEMENT OF POULTRY BEFORE AND AFTER EXHIBITION.

I should like to make a very few remarks in reply to Mr. Nicholls, not, as he will readily believe, from a desire for controversy, but because the points are really important. I was perhaps a little amused by reading how at the Crystal Palace no bird "had any water until it had first eaten some food," and then to find "they cannot swallow food until they *have some water;*" but of course we all know this must be either a slip of the pen or of the printer, and Mr. Nicholls will not grudge the grin which is sure to arise with the reflection of what a small amount of sustenance such a regimen must afford.

But what I wanted to return to was the possibility of a fowl being starved on the return journey. The particulars Mr. Nicholls gives allow me to identify the bird he names as a very fine Brahma cockerel, which, so far as I remember, I offered £15 for; and this being so, I repeat, without the very slightest hesitation, that it *is* "simply nonsense" he should have died from starvation on account of a two-days journey, nor could he had it been three. Observe, the bird arrived dead; and I may say, without fear of contradiction, that there is no adult animal whatever that will die from such a cause in this time. My own birds, when I removed to London, were nearly that time on the road without ill result; and when Mr. Boyle bred Brahmas in Ireland I had several times birds from him which were longer on the way. In one case there was a special request that a certain cockerel should be returned "at once" if not kept, and

he was sent back after only one good meal of soft food, which would be the only feed in about four days; but he came to no harm. To kill a Brahma by starvation would take at least a week. The gentleman on whom Mr. Nicholls relied, whatever his pretensions may have been, can have known very little to give such an opinion. Few indeed are really competent to dissect a fowl and give such a judgment; for not until heart, liver, lungs, brain, spinal column, and countless other far more obscure organs have been carefully and minutely examined, as well as most diligent search made for actual injuries, can it be said that "all are in a healthy state." One small spot of blood in the brain would be amply sufficient to account for death. But, however this may be, anyone who could pretend to examine a bird, and then say that because "all the organs were healthy" it had "died from starvation," after two-days starving only, is a very unsafe guide, and I am glad that the absence of any name enables me to express that opinion freely. That two days on a journey may do irreparable injury I freely admit; but in this case, let it be again observed, the bird *arrived* dead, which is a simple impossibility from such a cause.

Lastly, Mr. Nicholls says that feeding birds in a pen "must" increase the size, especially with such food as I use. I did not say what I did, that it need "not" increase the size, without having again and again put the matter to the most infallible test—that of the scales. Of course size can be thus increased; but this depends on the quantity as well as quality of the food; and my direction was always to keep the birds with eager appetites. Some of the best fowls I have ever seen, and bearing the highest honours, have not been in the least fattened. Fattening hides many a bird's faults, but a really first-class bird does not need this. I only find fault with Mr. Nicholls's "must," and only wish on my own part to repeat the caution against this fattening, which is the chief cause of half that goes wrong with exhibition fowls. The birds I mentioned as having been penned for weeks were carefully kept from any increase of weight, and so too are Game fowls, which are often penned previous to showing. It all depends on the feeding. What I urge is, the best food to get first-class plumage, but sparingly given. With nearly all Mr. Nicholls's other remarks I cordially agree.—L. Wright.

BEDLINGTON POULTRY SHOW.

In The Journal of Horticulture for last week I find that "Bedlington Terrier," in a criticism on the Pigeon awards at the Bedlington Show, makes some remarks that require correction; and, as one of the arbitrators, I feel assured I may ask at least for accuracy of statements as to facts that if unnoticed might tend to our prejudice. I shall purposely avoid any allusion to those portions that simply show difference of opinion, and confine myself to three plain facts. "Bedlington Terrier" says, "Owls had thirteen entries, and all very poor except pen 275, which was unnoticed." Pen 275 was an empty pen when judged. Your correspondent states, "Barbs were all very good, but Mr. W. B. Van Haansbergen's well-known old Black warrior only obtained the second honours, but he richly deserved the place of Mr. Orange's bird." As already published in the list of awards, the fact is Mr. Van Haansbergen, with his two entries, won *both* the prizes in the Barb class, whilst Mr. Orange's pen was not noticed. "Bedlington Terrier" also says, "The Variety class was strong; the two pens containing White Dragoons and Yellow Dragoons, Nos. 325 and 326, were undoubtedly the two best pens shown, and richly merited the honours of first and second prizes, which they did not receive." Both Nos. 325 and 326 were empty at the time the awards were made, but they were penned afterwards.—Edward Hewitt.

[The first duty of a critic is to be accurate as to facts, and we regret that we relied upon the accuracy of the communication, as the writer sent us his name and address.—Eds.]

MANAGEMENT OF POULTRY AT EXHIBITIONS.

As there are so many shows springing up in all quarters, I consider it well-spent time to make a few remarks upon the management of birds on their arrival at a show, during their stay, and preparatory to repacking. Having had the entire management of the Ipswich exhibitions, and receiving many flattering acknowledgments of the birds' safe return, I am emboldened to chronicle the few simple rules I have adopted.

In the first place, make sure that the pens are closed at the backs and sides, for many a first-class cock is spoiled by threading his sickle feathers through the wires. No pens show birds better than those which have closed backs and sides, galvanised wire netting at the top, and quarter-inch galvanised upright wire rods for the front. Strew the bottom of the pens with coarse and the most colourless grit, excepting for the white or light-plumaged varieties, for which we use clean straw cut into half-inch chaff. I would here enter a strong protest against the use of sawdust for the bottom of pens, as has been mooted in more than one instance. For feeding I recommend scalding some of the best barleymeal, then stiffen up just so much that when the fowls peck at it, it falls into pieces like a properly-cooked floury potato. When they have had their peck at this they may have water put into their tins, as they will not then drink more than is good for them. For their next meal they may have a mixture of small maize, barley, and wheat. Their last meal should always be the same as recommended above for the first, as nothing is worse than feeding birds with dry whole corn just before packing, when they will perhaps be on their journey one or two days and nights. I always give the policemen (of whom, through the kindness of the Mayor of Ipswich, we have several looking round during the Show), strict injunctions not to allow visitors to molest the specimens with sticks; for too often at exhibitions a few persons go from pen to pen, poking a stick first at one bird and then at another.

Lastly, care should always be taken to provide abundant ventilation, but so managed as to prevent a cutting current of air passing through the pens, which is very injurious, and but little better than the merciless exposure the birds have to endure at some shows where the pens are placed entirely in the open air; and, as one of our oldest and most respected judges said of one such show, the Ducks appeared to relish the downpour of rain, but the other specimens presented a most pitiable sight, let alone the adverse circumstances under which the awards had to be made. Therefore, select a well-lighted, well-ventilated, weather-proof place for poultry shows, for it will contribute to the well-being of the birds and the comfort of the adjudicators, upon whom rests the difficult task of satisfying exhibitors and the public generally.—W. B. Jeffries, *Henley Road, Ipswich.*

DEVON AND EXETER POULTRY SHOW.

This was held on the 23rd and 24th inst. The entries were numerous. The following is the prize list:—

Brahmas.—*Dark.*—1, R. Uren, Gunnislake. 2, E. Burton, Truro. *hc*, W. M. Snow, jun., Abbeville, Exeter; B. F. Parrott, Bristol; E. Burton, Truro.

Brahmas.—*Light.*—1, J. Bloodworth, Cheltenham. 2, F. Seccombe, Totnes. *hc*, J. Long, Plymouth. *c*, J. Long, Mrs. Wollacombe, Lewdown.

Cochins.—*Cinnamon or Buff.*—1, J. Bloodworth. 2, S. R. Harris, Cusgarne. *hc*, C. Bloodworth, Cheltenham. *c*, G. D. Gould, Moretonhampstead; Mrs. G. D. Gould, Moretonhampstead; Mrs. C. Morris, Teignmouth.

Cochins.—*Any other Variety.*—1, Whitehead & Beachy, Kingskerswell. 2, A. C. Travers, Falmouth. *hc*, F. Brewer, Lostwithiel; Whitehead & Beachy. *c*, C. Bloodworth; J. Bloodworth; Whitehead & Beachy; Miss A. F. Barnes, Bellair, Exeter.

Dorkings.—1, E. Burton. 2, R. W. Beachy. *hc*, J. Chisman, Southampton; Mrs. Wollacombe; G. Eveleigh. *c*, E. Burton; R. W. Beachy.

Game.—*Black Red.*—1, H. Browne, St. Austell. 2, E. C. Pope, Falmouth. *c*, W. Lovering, St. Austell.

Game.—*Brown Red.*—1, H. E. Martin, Fakenham. 2, S. R. Higham, Morchard Bishop.

Game.—*Any other variety.*—1, Rev. G. S. Cruwys, Morchard, Tiverton. 2, E. C. Pop. *c*, F. Angel, Totnes.

Hamburghs.—*Golden-spangled.*—1, H. Feast, Swansea. 2, S. R. Harris, Cosgarne. *c*, H. Ascott, Tiverton.

Hamburghs.—*Golden-pencilled.*—1, W. Speakman. 2, C. Bloodworth.

Hamburghs.—*Silver-spangled.*—1, S. R. Harris. 2, A. Goodridge, Northampton. *c*, E. Burton.

Hamburghs.—*Silver-pencilled.*—1, S. R. Harris. 2, N. Barter, Plymouth. *c*, H. Denbam, Exeter.

Spanish.—2, S. R. Harris.

Minorcas.—*White, Black, or Blue.*—1, J Hutchings. 2, H. Ascott, Tiverton. *hc*, H. Leworthy, Barnstaple; F. J. Bucher, Crediton; J. Hutchings, Exeter; W. Blackmore, St. Sidwells, Exeter; T. Botterell; E. Burton. *c*, F. Beck.

Polish.—1, T. Jacobs, Newton Abbot. 2, S. W Probert, Lostwithiel. *hc*, Mrs. C. Morris, Teignmouth. *c*, Miss F. Solomon, St. Blazey.

French Fowls.—1, J. H. Nichols, Lostwithiel. 2, Mrs. Barnett, Croan Manor, Bodmin. *c*, H. Feast.

Game Bantams.—*Black Red.*—1, J. H. Nicholls, Lostwithiel. 2, T. Jacobs, Newton Abbott. *hc*, J. Croote, Salutary Mount, Exeter; H. P. Price, Castle Madoc, Brecon, South Wales; J. Pearson. *c*, Wingfield & Andrews, Worcester.

Game.—*Any other variety.*—1, Rev. G B. Knight, Chelmsford. 2, Ashley and Maitland, Worcester. *hc*, Wingfield & Andrews; R. P. Ceath, Tavistock. *c*, J. Long, Plymouth.

Bantams.—*Black or White Clean-legged Rose-comb.*—1, Wingfield & Andrews. 2, Rev. G. S. Cruwys. *hc*, J. Mayo, Gloucester; J. Bloodworth. *c*, H. Feast.

Bantams.—*Gold or Silver Sebrights.*—1, Rev. G. S. Cruwys. 2, J. H. Amory, Tiverton. *c*, Rev. G. S. Cruwys; J. H. Amory.

Bantams.—*Any other variety.*—1, J. Humphreys, Liskeard. 2, O. E. Cresswell, Bagshot.

Ducks.—1, L. H. Rickets, Ranwell. 2 and *c*, S. R. Harris.

Any other Variety.—1, J. F. Loveridge, Newark, Notts. 2, T. G. Ford. *c*, Mrs. Huxtable, Lankey; M. Bennett, Exeter.

Selling Class.—*Cocks.*—1, S. R. Harris. 2, S. R. Higham. *hc*, J. Hutchings; J. Bloodworth; Hon. and Rev. F. Dutton, Burford; C. Bloodworth; E. Burton; T. Chambers, jun., Northampton; A. C. Travers, Falmouth; J. H. Nicholls; S. R. Harris. *c*, Mrs. Wollacombe, Stoford Rectory, Lewdown; J. Chisman.

Selling Class.—*Hens.*—1, E. Burton, Truro. 2, J. Tonar, Rougemont, Exeter.

PIGEONS.

Carriers.—1, T. Chambers. 2, E. Burton. *hc*, J. Tonar; H. Yardley.

Pouters.—1, H. Yardley, Birmingham. 2, G. Packham, Whipton, Exeter.

Barbs.—1, E. Burton. 2, H. Yardley.

Tumblers.—1, H. Yardley. 2, H. Willcocks, Spurbane, Exeter.

Dragoons.—1, H. Yardley. 2, F Graham, Market Place, Birkenhead.

Antwerps.—1, F. Beck, Exeter. 2, H. Yardley.

Turbits.—1, H. L. Ricketts. 2, J. Croote, Salutary Mount, Heavitree, Exeter.

Nuns.—1, H. Yardley. 2, W. J. Puddicombe, St. Sidwells, Exeter.

Fantails.—1, — Nosworthy, Barnstaple. 2, H. Yardley.

Jacobins.—1, O. E. Cresswell. 2, J. Bullen, Barnstaple.

Any other Variety.—1, W. H. Scott, St. Leonards, Exeter. 2, O. E. Cresswell. 3, J. L. Smith, Newport, Barnstaple.

Judge.—Mr. Tegetmeier.

SELLING DISEASED PIGEONS.

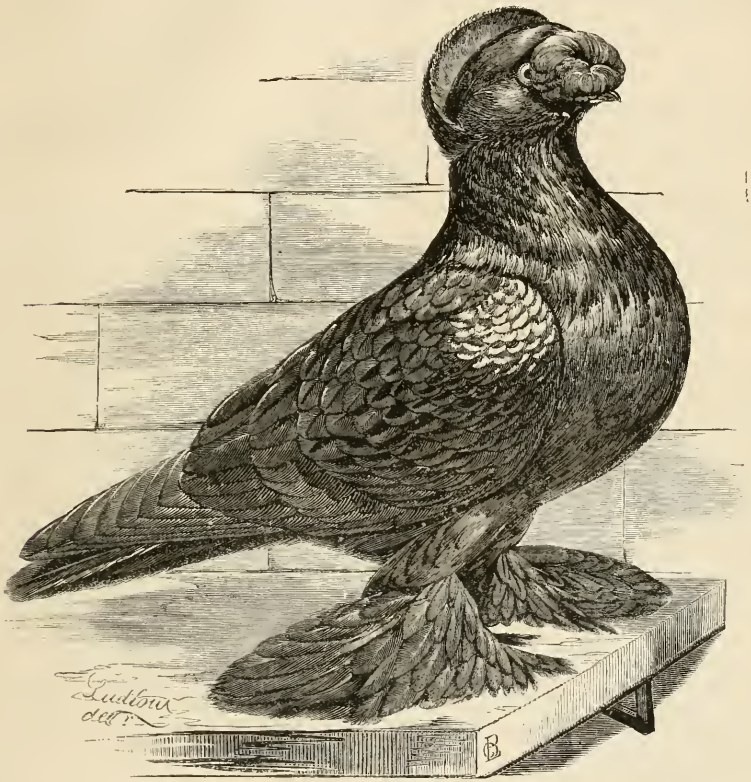
Swansea County Court.—*Crook* versus *Watkins.* This was an action, and a jury case, brought to recover £7, value of two

Carrier Pigeons, part of two pairs which had been supplied by the defendant Mr. Watkins, of Byford, near Hereford. Plaintiff having called Mr. Bulpin, of Bridgewater, and Mr. Ace, of Ystalyfera, to prove the diseases of the birds, also proved by other witnesses that the birds arrived diseased. The defendant tried to prove the birds caught cold in transit, which accounted for the disease being on them when arriving. It was shown that the practice of selling Pigeons diseased was a common one, and this action was brought to make an example. The jury returned a verdict, with costs, for plaintiff.—(*Swansea Herald.*)

THE TRUMPETER.

The Trumpeter, like all cultivated varieties of the Pigeon family, has its ardent admirers; for, although its peculiar properties are closely imitated in other breeds, those points in which it differs are so distinct and remarkable that it has made friends of its own in all lands.

Some modern writers credit the ancient Egyptians or Arabians



The Trumpeter.

with the production of the Trumpeter, as with so many other varieties of our favourites, a suggestion, we think, most likely correct, for the earliest records of the old world show the Dove had then been long domesticated, and was an established favourite.

Russia has furnished some of the best specimens of the Trumpeter we have heard of, nevertheless, we should be inclined to believe there the breed had been improved rather than originated.

There is a peculiarity in the coo of this bird, distinct from any other breed; it is a prolonged sonorous coo-coo-cooing, to which the variety owes its name.

The majority of the breed are Black, Black Mottles, and White. There are a few Reds, Yellows, and Duns, but we believe the Whites are the most numerous, and present birds of higher properties than any other coloured Trumpeters. The Blacks have many good birds among them. Next to White the most prevalent are the Black Mottles, a very large and meritorious variety; and now that its other points are so near perfection, we hope to see more regard paid to their marking, for we know of few birds that would better repay the attention necessary to perfect them in that feature.

Their properties are rose, crown, muffs, colour, and size. The rose is above or at the root of the beak; it should be large, flat, and circular. The hood or crown should be even, large, and rise well from the back of the head, so as to give full effect to a front view. The muffs should be long, strong, and well-proportioned, as represented by the engraving. As to colour, the purest white, jet black, and the best marked mottled, will have the preference in their respective classes, other points being equal to those of their competitors. With regard to size the present taste is in favour of the largest.

The first element of success in Pigeon-fancying is cleanliness, and for this variety it is especially necessary, otherwise one of its chief attractions, the muffs, will become an eyesore.

Many fanciers in the breeding season cut the muffs short,

thinking both the eggs and young are in danger from their great length; but from our own knowledge in breeding long-muffed birds we can affirm that there is not any occasion to do so, for in an experience of fourteen years we have never cut a muff nor had any more casualties with our muffed birds than with the clear-legged ones, and for many years their feathers were from 3 inches to 4½ inches long. Remember the feathers all run outwards, and the eggs and young are carefully kept within the feet and legs. Again, watch the old ones going to their nest, and it will be seen there is not much to fear.

There is a merit in Trumpeters that many high-class varieties do not possess. They are good nurses, requiring no more attention than ordinary Pigeons would; besides, they are of an even good temper, very familiar, and of a sound robust constitution. Thus they are adapted to young fanciers as much as any breed we know.—Birmingham Columbarian Society.

AUSTRALIAN PARROQUETS AND DORKING FOWLS.

The following facts may interest some of the many readers of "our Journal." There are at the present time in an aviary at a certain rectory in Kent, three young Parroquets flying. They have just left the nest which the parent birds had built in a hole of the wall of this same aviary. The parent birds have lived out of doors throughout the past winter, their only shelter from the inclemency of the weather being some sloping boards over a small portion of the aviary, which covering they have shared with Canaries, Java Sparrows, and different varieties of our English birds.

I have this day taken from under a Dorking pullet which I watched on to the nest, an egg. I did the same yesterday (May 24). This bird was hatched on the 5th of January, 1872. Who after this can doubt the fact of Dorkings being good layers?—A. K. C.

HOME PRODUCTION OF EGGS AND POULTRY.

(*Concluded from page* 433.)

The system of feeding practised at this farm is as follows:—The fowls leave their roost at the first rising of the sun, and are out and about for two hours picking up the early worms, &c.; at eight o'clock the fowls get their morning meal, which consists of a mess of meal mixed to the consistency of a stiff dough, 1½ oz. being allowed to each bird. This meal is continually varied, one time oatmeal, another barleymeal or Indian corn meal, or brank or buckwheat meal, and a small quantity of bran being mixed through it; this is thrown to them on some clean spot, each fowl being allowed as much as it will pick up greedily. Midday they get a small allowance of boiled potatoes, parsnips, carrots, or mangels hot, with a little bran and chandler's greaves or other stimulating substance mixed through it; and at four o'clock, before retiring to roost, they are supplied with whole grain at the rate of 1½ oz. to each bird, a change in the variety given being made twice a-week. The cost of the feeding I have described throughout the year averages 1½*d.* to 1¾*d.* per week per bird, taking the price of grain at 1*d.* per lb.—a fair average price, and this feeding is found to keep the stock in the highest possible state of health and profit. Five or six broods of chickens are hatched every March to replace the hens killed off each autumn, and so a succession of young and profitable birds is being continually kept up. A little dry mould or earth is sprinkled twice a-week over the droppings of the fowls in the hen-house to deodorise their excrements, fix the ammonia, and keep the house sweet, and so render the manure as valuable as possible, and obviate the necessity of continually cleaning the house. This manure and earth is removed every two months, and used upon the farm or garden, and found to be nearly equal in its fertilising power to guano. Two or three broods of chickens are reared for market purposes during the months of March, April, May, and June, of either the Houdan or Brahma-Dorking breed. The chickens are forced on by liberal feeding and continual change of food, so as to get them ready for market as soon as possible. The chickens are usually fit to kill at the age of eleven or twelve weeks. During this three months they are estimated to consume food to the value of about 1*s.* 5*d.*, besides what they gather for themselves, at which age they weigh from 4½ to 5 lbs., and realise 3*s.* 6*d.* each, leaving a profit of about 2*s.* on each chicken. The young chickens are cooped for ten days with their mother upon a grass plot, and fed on a variety of nourishing dainties, to give them a start in life; after this they are allowed their liberty with the hen, and fed liberally three or four times a-day. At the age of ten weeks they are confined for a fortnight, and fed upon as large a quantity of fattening food as they can be induced to consume—chiefly oatmeal and milk; they are then killed and disposed of. The profit derived from fattening for the market (considering the risk and attention necessary) are not at all equal to that realised by laying stock. The former require little or no attention beyond mixing and throwing them their food two or three times a-day, and daily collecting their eggs, and the manure made during the twelve months is estimated to well cover all cost for attendance. The casualties that arise from the death of chickens is found to be very trifling—suppose one-third of each brood to die before they attain the age of eight weeks; the cost of food consumed by a young chicken of this age will certainly not exceed 3*d.* or 4*d.*, and what a trifle is this deducted from the 10*s.* or 11*s.* clear profit realised in twelve months by each fowl that comes to maturity. Well, to sum up the total receipts and expenditure of this lot of fowls, it will be found to be as follows. On the debtor side we have:—

Dr.	*s.*	*d.*
Cost of rearing and feeding sixty laying hens to the age of nineteen months, at the rate of 1¾*d.* per week for grown birds, and half the amount during chickenhood—each ..	6	8

Well, on the credit side we have:—

Cr.		
15 dozen eggs at an average price of 1*s.* per dozen—*i.e.*, 9*d.* in summer and 15*d.* in winter—will realise	15	0
Value of fowl when killed in the autumn, at 4*d.* per lb.—say	2	0
	17	0

Now deduct the above cost for rearing and keep during the nineteen months (6*s.* 8*d.*) from the 17*s.*, and we have a balance of 10*s.* 4*d.*, a clear annual profit from each laying hen; and, as I showed before, a profit of 2*s.* in three months from each chicken reared for market will thus give:—

Sixty hens at 10*s.* 4*d.*	£31
Sixty chickens reared for market	6
	£37

Representing the clear profit annually realised from this comparatively small stock of poultry. It is estimated that a fowl will void at least 1 oz. of dry excrement during the twenty-four hours; and allowing this manure in a dry state to be worth 5*s.* per cwt., which is certainly a moderate price, we have the nineteen months' manure from each fowl to the value of 1*s.* 9*d.*, or a total on all the fowls of £6 5*s.*, which allows over 2*s.* per week to cover cost of attendance. Profits such as I have here described I think all will admit will favourably compare with that realised from other farm stock.

It will be asked by some upon what grounds fowls can be supposed to realise a larger profit than other flesh-forming animals. The answer is a simple one. In the first place, fowls obtain at least one-half their living at no cost whatever to their owner, upon what may be called waste food, such as worms, slugs, flies, beetles, grubs, grass seeds, waste corn, and vegetable food, all of which they gather for themselves, at no cost to the owner; whereas, cattle, sheep, pigs, &c., depend wholly upon food purchased or raised especially for their use. Again, the average price realised in the carcass for beef and mutton is only 4*d.* or 5*d.* per lb., whereas the price of fowl meat is 9*d.* or 10*d.*, although produced at a much less cost; and again, the profit realised by the eggs produced in proportion to the food consumed is far greater than that realised by producing meat. It may also be considered that an average yield of 180 eggs in the twelve months is a high average; but those who keep the best and most improved breeds, properly fed and cared for, exceed this average, 230 and 250 eggs being commonly obtained from certain breeds. It will also be considered by some that 3*s.* or 3*s.* 6*d.* is a stiff price for a chicken, and no doubt it would be for the wretchedly small-sized, half-fed birds one sees exposed in our country markets for sale. A large, meaty, well-fed Houdan or Brahma-Dorking chicken, weighing 4½ to 5 lbs., will as readily fetch 3*s.* 6*d.* as a small barndoor fowl one-half its size will realise 2*s.* or 2*s.* 3*d.* Although fowls are not sold by weight, a purchaser is entirely guided by size, condition, and general appearance as to the price he will give. It therefore comes to much the same thing. It is absurd to say as some do—"Oh, a fowl is a fowl, and you will find no one to give more than 5*s.* a-couple, no matter how big and good they are." I have sent fowls to market that weighed from 8½ to 9 lbs. of Brahma-Dorking breed; and my experience is that an extraordinarily large and well-fed fowl will fetch a fancy price, really more than its relative value rather than less than it.

I have now touched generally upon poultry management, as it is and as it should be, and I trust that I have been able to show to the satisfaction of some that our home production of eggs and poultry is not what it might be, and that I have further satisfied one of my hearers who may not be partial to the feathered tribe, that poultry, under certain conditions, may be made profitable farm stock. If it can be shown that poultry can be kept at a profit, and not only a profit, but a very handsome profit, then I say it is a disgrace—a national disgrace—in a great agricultural country like Great Britain, with its millions of paupers, to think that we so shamefully neglect this important branch of industry, and depend upon our neighbours for the countless millions of eggs we annually purchase from them. Although I am an advocate for free trade, I believe that the existence of a heavy import duty upon eggs for twelve months would have a most wonderfully beneficial effect upon the country. The immediate effect of such a duty would be to so raise the

price of eggs as to induce the more general keeping of fowls by the million, and in greater numbers than at present kept. The demand would be so great and pressing, and the price so high, that the energies of this country would be stirred up to the importance of this subject, and the profit that may be realised by poultry-keeping; and when this was once thoroughly understood, and the profitable nature of good breeds of fowl better and more widely known, I believe that in a very few years we should be ourselves producing the million and a half eggs we now daily import. The pauper population of this country has increased of late years to an alarming extent, now numbering over one million, besides another half million that may be said to be on the verge of pauperism. Seven millions more are said to be living from hand to mouth, having made no provision for the future, and having no interest in life or stake in the soil of the country, beyond their daily labour, to occupy their mind and body. When we consider seriously that we have about our very doors one million paupers, besides nine millions (nearly one-half of our population) struggling for existence, and living from hand to mouth, I say this sad fact does not show the condition of this country to be in the flourishing state that our increasing revenues and hoarded wealth would lead us to suppose; and I would ask, Cannot something be done to encourage the spirit of self-help among our cottage classes, by inducing them to take more interest in their homes by the keeping of poultry, pigs, bees, and the cultivation of a garden? Nine-tenths of the eggs and poultry we get from abroad are produced from that very class from which our pauper population springs. If our poor neighbours abroad are able to make a living by the keeping of poultry, although they sell their produce at little more than half the price that we may realise, I say it is a disgrace for us to continue to import those articles we could and should produce ourselves.

Now, suppose for one moment that our 400,000 British farmers, and say 200,000 cottagers and country residents, all kept a stock of say two dozen fowls, what number of eggs would these produce, and what profit be realised, and how much money which now goes abroad would be circulating among our labouring population? I will tell you. The number of eggs these fowls would produce would be equal to five times the number we at present import—no less than 2500 millions, representing, at 9*d.* per dozen, upwards of ten millions sterling, a sum more than sufficient to cover the entire poor rate of Great Britain. Do not these figures show the importance of this subject, and the benefit that would accrue to the public in general by the circulation of so many millions of money, and especially to the benefit of that class which so much needs a helping hand?

I will now conclude by throwing out a few suggestions as to the best and easiest way of improving one's existing stock of fowls by introducing fresh blood. The cheapest and readiest way that will naturally present itself would be to introduce a cock bird of one of the best and most approved breeds, to cross with some six or eight of your largest and best hens at present in your yard. A 9 or 10-lb. Brahma cock would probably be the best to cross with half-bred Dorking or full-bodied barn-door hens; or, if your stock is of a smaller breed, cross-bred Hamburghs or half Spanish, a fine spirited Houdan cock may be introduced with great advantage. In either case, your breed of fowls reared from this cross will be considerably improved the following year, both as to size, strength of constitution, egg-producing powers, and fattening propensities. Such a course, however, would be but a makeshift, and the better plan would be to clear out one's stock entirely, and commence *de novo* by the introduction of entirely fresh stock, and that the very best that can be obtained. Either a few birds may be purchased of the several breeds desired to be kept, and the eggs set aside for hatching as they are laid, or a couple of sittings of eggs from some near breeder of known respectability may be purchased, and so a stock of the best birds may be procured at little cost. The following year these birds may be either crossed or kept pure; but in the case of allowing your birds to cross, it will be important to see that you allow but one cross, always breeding from the pure stock, and not from the eggs laid by the cross, or you at once commence to degenerate. A single cross judiciously done is rather beneficial than otherwise, as it almost invariably produces a profitable and precocious offspring, with increased stamina and strength of constitution. The Brahma and Dorking, and the Houdan and Silver Hamburghs, are both admirable crosses, and the Crêve cock may also be made use of with great advantage, combining, as this breed does, great size with superb quality of flesh and aptitude to fatten. If there is one point more important than another in keeping up your breed of fowls to the proper standard, it is the possession of a really good cock, of a strain wholly different from the breeds he is mated with. Sufficient importance is seldom attached to this essential requirement.

Before concluding I will make a few remarks with respect to Ducks. Ducks are, under certain conditions, among the most profitable stock of the poultry yard. Those who possess plenty of marshy ground can keep Ducks at little or no cost, as they will, under these conditions, find their own living; but in places that do not afford these advantages Ducks are amongst the most ruinous and unprofitable creatures connected with the farmyard, managed as they commonly are. The Aylesbury people, who are perhaps the most successful Duck-breeders in the world, adopt a system that is almost unknown, certainly unpractised, elsewhere. It is said that upwards of £20,000 is annually received in this district alone for the ducklings sent to the London market. The system adopted by these breeders is to bring Ducks into the London market at a season when none are to be obtained elsewhere, and they consequently obtain a monopoly, and realise enormous prices. The Aylesbury breed commence to lay a month or six weeks earlier than any other breed, and these eggs, laid open in the depth of winter, are at once set under hens, and, when hatched, the young are hastened to maturity with amazing rapidity. They are kept in a warm, sheltered situation, fed upon the most nourishing food, and never allowed access to water. Oatmeal and milk form their chief diet, and sometimes more stimulating food is added. These Ducks grow, fatten, and feather with rapidity. In less than eight weeks from the time they leave the shell they are in perfect feather, and ready to send to market. In places where Ducks have to depend on hand-feeding for their living, they can only be kept profitably by bringing them rapidly to maturity, and killing them before they take to the water or begin to lose their first feathers.

CANARY'S SONG CEASING.

I HAVE found hard-boiled eggs and mawseed an infallible cure for non-singing. Many birds do not sing about this time. I have three that do not; the only way I can account for this is that it is the breeding season. Sparrows very often destroy the song of the Canary by their chirping. Sometimes birds lose their voice altogether for some considerable time after moulting, especially if they do not moult freely, but when warm weather comes in they get it back again. When birds are moulting there is nothing better for bringing them through than a rusty nail in their water, which may be kept in all through the winter, as it strengthens them very much.—BED OF STONE (*in English Mechanic*).

[The remedy prescribed for silence is simply nonsense. All the hard-boiled eggs and mawseed in the world won't make a Canary sing. Being stimulating food it has a tendency to make a bird lively, and the natural expression of health is song; but as for being an infallible cure—stuff! It is still worse stuff to say that silence can be accounted for on the supposition that it arises from anything incidental to the breeding season. That is the very time when birds do sing, and sing more lustily than at any other time. The Canary is very apt to imitate other birds, and might very easily acquire the chirp of a sparrow, with which he would interlard his own song; but no amount of impudent chirping from any sparrow would silence a "fresh" Canary in the month of May. As a rule birds never sing during the moulting sickness. Exceptional cases might occur, and possibly do, hens even so far forgetting their sex as to sing the proud song over other hens—and worse. But a whistling woman and a crowing hen——never mind the rest.—OUR SUNDERLAND CENSOR.]

THE POPE'S CAT.—Though Pio Nono does not invite dinner company, he has nevertheless one table guest, whose conduct as such is neither restricted nor guided either by etiquette nor ceremonial; this is his black cat, called on account of its colour Moretta. Nay, indeed, so privileged is Moretta that she not unfrequently, if such be her august pleasure, eats from his very plate, and that under the caresses of his sacred hand, of that hand which is supposed to dispense apostolic benediction. There is unquestionably the very best understanding between the Pope and his cat; he treats her with the most affectionate attention, and she reciprocates his attachment by all the means in her power; she knows his step from all others, shows the greatest satisfaction in his presence, and mews piteously when etiquette or ceremony separates them. When the Pope says mass or gives audience she is carefully shut in; nevertheless there is always a fear lest she should step out and be discovered in the midst of some grand and sacred solemnity, before the astonished eyes of the devout, fondly rubbing her sleek sides, with her tail aloft, against the silk-stockinged pontificallegs, purring forth her satisfaction, whilst he himself perhaps was elevating the very Host itself. All the persons surrounding the Pope, aware of the probability of such an occurrence, guard very carefully against it. Moretta has already had progeny; it is, therefore, little short of certainty that many a palazzo and convent, faithful in their allegiance to the Pope, may possess at the present time, and for many a cat generation yet to come, honoured cats, which will claim their descent from Pio Nono's favoured Moretta. One, at least, of her descendants has, we are told, passed into the hands of Monsignore Nardi, who petitioned for the young thing before it came into the world, although His Holiness, it is said, had al-

ready long determined in his own mind so to favour him; perhaps because Monsignor Nardi is of a remarkably social disposition, and does good service for the papal cause amongst the wealthy and fashionable *forestieri*. And why should not Pio Nono, whose pleasure it is now to shut himself up in his palace of the Vatican, have his cat to amuse himself with? It is an amiable trait in the old man's character, and nobody will think the worse of him for it.—MARY HOWITT (in *The Leisure Hour*).

LARGE versus SMALL HIVES.

IN the number for February 29th, page 205, I replied to a correspondent under the *nom de plume* of "THE BEE HIVE," on this subject. I then stated that I had often seen the whole of the ten frames of a hive of larger dimensions than the Woodbury hive filled with brood. On Saturday, the 25th of May, I divided the ten frames of a Woodbury hive (of which I have several now in use) for the purpose of making an artificial swarm, and placed five of them with the queen in one box, and five in another. I had to look over every frame but one in succession before I found the queen, and every comb, including the tenth, was quite full of brood, with the exception of a very small portion of the upper part of the combs which were appropriated to honey, &c. The queen seemed almost as if she had not nearly enough space for the deposition of her eggs. What may perhaps render this fact the more interesting is, that about six weeks ago this hive, on inspection, proved to be rather weak in bees, and I then supplied them with a sealed brood comb from another colony. The improvement almost immediately manifested in their vigour and working was most marked, and from being one of my weakest, this became the strongest stock in my apiary, without, apparently, doing very much damage to the stock from which the brood comb was abstracted, which also had to part with another brood comb at the same time for the purpose of supplying population, and the material requisite for the raising of royal cells, for a hive that had lost its queen. I am convinced that if I could have drawn out this hive laterally, and supplied it with three or four more combs, that these would also have, very quickly, been filled with brood as well as the rest. People who use small hives, whereby the energies of the queen and bees are cramped, can have no idea of what queen and bees can do with plenty of room judiciously afforded.—S. BEVAN FOX.

OUR LETTER BOX.

SEPARATING PULLETS FROM COCKERELS (*C. J. Rowe*).—The chickens need not be divided till they are four or five months old. The advantage is, that separated they attain much greater size than when they run together, and the cockerels do not fight. Hatching in eighteen days is unusual.

PARTRIDGE COCHIN-CHINA POINTS (*Young Beginner*).—The hackles you enclose are correct. You should get rid of every cock that has a stain of brown on his breast; and all white is wrong, except in the tail of an old bird—he is better without it. Grouse and Partridge Cochins are more birds of feather than of weight, but at large shows the cock should weigh 10 lbs., and the hens 8 lbs., young birds each 1 lb. less.

COCK'S SPUR-NAIL TORN OFF (*Novice*).—Leave what remains of the spur. Heal it carefully. That which shows itself to be an accident is not a disqualification. Nothing would be gained by injuring the spur of a cock, and where nothing is to be gained there is no suspicion of foul play.

HEN'S LIVER DISEASED (*Hertford*).—Insufficient food during the very trying weather that we have passed through of late, always causes diseased liver in all the gallinaceous tribes. Give them meal or ground oats morning and evening, and some maize and scraps at midday. Put some camphor in their drinking vessels. The change in the weather will do more for them than any treatment.

FEEDING YOUNG CHICKENS (*R. B., Clapham*).—If the chickens are at liberty they will get all that is necessary for digestion. Very little action of the gizzard is necessary to digest chicken's food. It is merely an accident that the hen has laid so early. It sometimes happens, but she will still look after her chickens for some time, and her care is no longer so necessary now the warm weather is come. We always feed our sitters on soft food, and take them off once per day. The hens feed with the chickens, and always should, otherwise they ill-treat them. Give a lettuce or a fresh sod of grass.

BREEDING FROM A WRY-BREASTED COCK (*Cæsar*).—It does not follow as a rule that the produce of a crooked-bressted cock shall be crooked, because in many instances the fault is the result of accident. We allow our chickens to roost in the rips in which they were hovered when young, for months after the hen leaves them, and they do not get wry breasts. When chickens are at once (when the hen has left) put into a fowl-house, many of them find some sort of a perch, and rest upon it till the breast-bone curves. When there are neither perches nor substitutes for them, we do not believe you will have crooked breasts. If you object to your chickens roosting out of doors, put them at night in a dry outhouse, free from draught. Vulture hock is a growth of long stiff feathers from the thigh, that project beyond and below the knee.

AGE OF EGGS FOR SITTING (*A. T., Herts*).—You need have no misgivings. If the eggs are fresh you may keep them in a cool place for a fortnight, without their fecundity being injured.

COCKS WITH HENS OF ANOTHER BREED (*St. Margarets*).—It is impossible the cock should suffer, or be influenced in any way.

TORREY HEN MOPING (*A. M. L.*).—You describe no symptoms. The best thing you can do is to give a good dose of castor oil, and follow it with soft food and lettuces, until she appears cheerful and hungry.

CANKER IN YOUNG PIGEONS (*A Subscriber*).—There is not any cure known for canker in the mouth of young birds. Change the strain by getting another cock or hen.

SELF-PLUCKING PARROT (*A. Y. Z.*).—You should have stated the bird's diet. Nothing but bread soaked in water, fruits, and lettuce leafstalks should be given, and a shower bath through the rose of a watering-pot daily.

NET FOR BEE-FEEDER (*C. A. J.*).—The mesh of the net sent will do very well for the mouth of the bottles, though we usually use one a size or two larger. The neck of the bottle should be smaller than the rest of the bottle, and as straight as possible, and not bulging out with a rim or lip. If you place the mouth of the bottle resting on bars, or on combs, the fluid may escape, owing to capillary attraction. The best way is to have a 2-inch hole in the top board, over which is rested a piece of perforated zinc, and on this the bottle is inverted. If properly managed, the fluid, even if as thin as water, cannot leak through, but must be sucked out by the bees.

DESTROYING BLACK BEETLES (*Maude.*).—Chase's Beetle Poison, advertised in our Journal, we know to be effective. We extract the following from "The English Mechanic."—"A certain remedy is to procure some Bracken, Pteris aquilina, or common Fern, plentiful on commons, and put it down about the house at night. The black beetles will eat it ravenously and soon die, and their relatives will pick their bones. It is commonly used in the north of England."

METEOROLOGICAL OBSERVATIONS,

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude 111 feet.

DATE. 1872. May.	A.M. Barometer at 32° and Sea Level.	A.M. Hygrometer. Dry.	A.M. Hygrometer. Wet.	A.M. Direction of Wind.	A.M. Temp. of Soil at 1 ft.	IN THE DAY. Shade Temperature. Max.	IN THE DAY. Shade Temperature. Min.	IN THE DAY. Radiation Temperature. In sun.	IN THE DAY. Radiation Temperature. On grass	Rain.
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 22	29.870	54.0	47.6	S.E.	51.2	63.7	38.8	113.3	37.3	0.015
Th. 23	29.903	53.1	46.9	W.	51.4	64.8	37.5	115.2	35.9	—
Fri. 24	30.007	58.2	51.4	W.	51.9	67.2	39.2	115.1	37.5	0.010
Sat. 25	30.214	57.9	50.3	W.	52.6	67.8	40.0	121.0	38.7	—
Sun 26	30.355	58.9	55.3	W.	53.9	69.1	44.2	114.0	41.9	—
Mo. 27	30.370	65.5	59.0	S.W.	54.8	75.9	54.7	124.2	50.7	—
Tu. 28	30.293	67.6	62.1	S.W.	57.0	74.4	53.3	127.8	49.4	—
Means	30.145	59.3	53.3		53.3	69.0	45.3	118.7	41.6	0.055

REMARKS.

22nd.—Fine all day, except two or three very slight showers. Eclipse seen at intervals.

23rd.—Fine throughout the day and night.

24th.—Fine morning, getting none and more cloudy and storm-like in the afternoon. Thunder at 8.10 and 8.17 P.M., and rain at 9 P.M.

25th.—Fine morning, but cloudy afternoon, and thick evening.

26th.—Cloudy and storm-like till noon; fine afternoon: rather dull evening.

27th.—Bright, warm, and pleasant all day.

28th.—As bright and warm as yesterday, and even more agreeable.

A very fine, pleasant week, the mean temperature of the air 10° higher than last week, and that of the soil 3° higher. The barometer has been high, the air dry, and very little rain has fallen.—G. J. SYMONS.

COVENT GARDEN MARKET.—MAY 29.

A WEEK'S fine weather has greatly advanced vegetation, and brought us a large addition to our previous supplies. Asparagus, Cauliflowers, young Carrots, and Turnips are much improved, and Cucumbers quite difficult of sale at reduced prices. Large consignments arrive daily from the Continent, consisting of Cherries, Apricots, and Strawberries. New Potatoes 15s. to 24s. per cwt.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples ..... ½ sieve	3	0	to 6	0	Melons ..... each	6	0	to 15	0
Apricots ..... doz.	2	0	3	0	Nectarines ..... doz.	10	0	20	0
Cherries ..... per box	2	0	4	0	Oranges ..... ₱100	4	0	10	0
Chestnuts ..... bushel	10	0	20	0	Peaches ..... doz.	15	0	30	0
Currants ..... ½ sieve	0	0	0	0	Pears, kitchen ..... doz.	0	0	0	0
Black ..... do.	0	0	0	0	dessert ..... doz.	0	0	0	0
Figs ..... doz.	8	0	12	0	Pine Apples ..... lb.	6	0	12	0
Filberts ..... lb.	0	6	1	0	Quinces ..... doz.	0	0	0	0
Cobs ..... lb.	0	6	1	0	Raspberries ..... lb.	0	0	0	0
Grapes, hothouse ... lb.	4	0	10	0	Strawberries ..... ½ lb.	6	0	12	0
Gooseberries ..... quart	0	2	1	0	Walnuts ..... bushel	10	0	25	0
Lemons ..... ₱100	7	0	10	0	ditto ..... ₱100	1	0	2	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes ..... doz.	4	0	to 6	0	Leeks ..... bunch	0	2	to 0	0
Asparagus ..... ₱100.	4	0	8	0	Lettuce ..... doz.	0	0	1	0
Beans, Kidney ..... per 100	1	6	2	6	Mushrooms ..... pottle	1	0	2	0
Broad ..... bushel	0	0	0	0	Mustard & Cress ..punnet	0	2	0	0
Beet, Red ..... doz.	1	0	3	0	Onions ..... bushel	3	6	5	0
Broccoli ..... bundle	0	3	1	6	pickling ..... quart	0	6	0	6
Brussels Sprouts .. ½ sieve	0	0	0	0	Parsley per doz. bunches	3	0	4	0
Cabbage ..... doz.	1	0	1	6	Parsnips ..... doz.	0	9	1	0
Capsicums ..... ₱100	0	0	0	0	Peas ..... quart	2	0	5	0
Carrots ..... bunch	0	6	0	0	Potatoes ..... bushel	4	0	6	6
Cauliflower ..... doz.	4	0	10	0	..... do.	9	0	5	0
Celery ..... bundle	1	6	2	0	Radishes .. doz. bunches	0	6	1	0
Coleworts .. doz. bunches	2	0	3	0	Rhubarb ..... bundle	0	5	1	6
Cucumbers ..... each	0	3	1	0	Savoys ..... doz.	0	0	0	0
pickling ..... doz.	0	0	0	0	Sea-kale ..... basket	0	0	0	0
Endive ..... doz.	2	0	3	0	Shallots ..... lb.	0	4	0	0
Fennel ..... bunch	0	3	0	0	Spinach ..... bushel	3	0	4	0
Garlic ..... lb.	0	3	0	0	Tomatoes ..... doz.	3	0	6	0
Herbs ..... bunch	0	3	0	0	Turnips ..... bunch	0	3	0	9
Horseradish ..... bundle	3	0	4	0	Vegetable Marrows .. doz.	0	0	0	0

POULTRY MARKET.—MAY 29.

THE demand has fallen off during the holiday week. The supply increases daily, and gives promise of continuing.

WEEKLY CALENDAR.

Day of Month	Day of Week	JUNE 6—12, 1872.	Average Temperature near London. Day.	Night.	Mean.	Rain in 43 years.	Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock after Sun.	Day of Year.
						Days.	m. h.	m. h.	m. h.	m. h.	Days.	m. s.	
6	Th	Leeds Horticultural Show closes.	69.9	47.6	58.8	22	48 af 3	8 af 8	54 af 3	48 af 8	●	1 35	158
7	F	Royal Horticultural Society's Show closes.	69.3	46.5	57.9	26	47 3	9 8	31 4	47 9	1	1 23	159
8	S		70.6	46.4	58.5	15	47 3	10 8	15 5	37 10	2	1 12	160
9	Sun	2 Sunday after Trinity.	70.8	47.2	59.0	20	46 3	11 8	11 6	14 11	3	1 0	161
10	M	Royal Geographical Society's Meet., 8.30 P.M.	69.6	46.9	58.3	19	46 3	12 8	13 7	44 11	4	0 48	162
11	Tu		72.1	47.6	59.9	13	46 3	13 8	19 8	morn.	5	0 36	163
12	W	Trinity Law Term ends.	71.4	46.1	58.8	21	46 3	13 8	29 9	8 0	6	0 24	164

From observations taken near London during forty-three years, the average day temperature of the week is 70.5°; and its night temperature 46.9° The greatest heat was 90°, on the 6th and 7th, 1846; and the lowest cold 30°, on the 11th, 1865. The greatest fall of rain was 1.48 inch.

THE PINE APPLE.—No. 1.

IT is much to be regretted that the greatly-increased attention that has of late years been paid to the cultivation of so many things that are considered luxuries, should not have extended to the Pine Apple; for although unquestionably more Pines are grown at the present day than thirty years ago, yet the cultivation of Orchids, Ferns, and even Grapes, has increased in a much higher degree. The Pine Apple, however, holds the same position now as then in the scale of importance, being still regarded as the king of fruits. One reason, doubtless, why its cultivation should have made less progress is the fact that large quantities of fruit from tropical countries arrive here at a time when home-grown fruit of other kinds is also plentiful: hence both the market and the appetite are glutted, and the once-aristocratic Pine Apple figures on the costermonger's barrow, and is retailed at the lowest figure imaginable.

That this cause has had some effect in withdrawing the attention of those having the means to grow Pines is certainly true, but there are other reasons as well. One is the supposed difficulty and cost of growing them, another the disappointment which some employers express when all the fruit grown are not large, and they unreasonably give up the cultivation of Pines when they find out the proportion of those weighing 8 or 10 lbs. is a very small one to the space they occupy. The time required for them to attain that weight, and the consequent cost of such fine fruit, more than counterbalance their utility. Although a noble Pine is an ornament to any table, it becomes rather commonplace when it is seen too often, and I have heard of one going the round of a series of west-end dinner parties for some weeks. It might have been used in the same way longer, and been equally useful, if it had been made of wax or cast-iron.

I am not an advocate for large Pines; therefore I respectfully differ from most of those who have written essays on the growth of this fruit, who seem to regard the production of extraordinarily large specimens as the perfection of Pine-growing. On the other hand, I take my stand on the platform (to use an American phrase) of "quantity and quality" as against size; not that the latter is entirely ignored, but simply because in general I would prefer half a dozen or more fruit of 2 lbs. each to one of 8 lbs., and I imagine they can be grown at the same, or it may be even at a less cost; flavour and other considerations being also taken into account. This may be done at much less cost than many would believe, for where insects can be kept completely under, and a steady bottom heat supplied with little trouble, the other conditions to the success of the Pine Apple are easily secured.

Structures for Growing Pines.—Commencing with the kind of house best adapted for the purpose, I would suggest as a very important point, whether Pines are grown in pits or houses, that they should not be connected with those devoted to ornamental plants. Many of the choicest stove plants are liable to mealy bug, and New Holland and other greenhouse plants to the white scale, and as these insects can pass from one house to another, there is small hope of keeping one house clear of these if there be a colony in the adjoining structure. In Grape and Peach houses these enemies to good cultivation can be routed out at least once a-year, but it is not so with the Pine house. It is advisable to adopt every precaution to keep the latter free from scale and mealy bug, which in Pines are much like the rinderpest in cattle, hardly to be cured except by destruction. Where practicable, the principal Pine structures should therefore stand by themselves, and it is also necessary to be very careful in introducing other plants amongst them; in fact, with the exception of Dwarf Kidney Beans reared from seed sown in the same place, and a few pot Vines grown in the same house, I exclude from the pinery everything else. Where other houses can be had for the growth of the Vines, it would be as well to exclude them also, but usually it is necessary to make the most of the space. With care a house may be contrived in which winter Cucumbers, Vines in pots, and Dwarf Kidney Beans may all be grown to advantage, as is done in the principal Pine house here, which, though not, perhaps, the most convenient or economical, nevertheless answers the purpose well. If I were going to build another for the various uses referred to, I do not think much alteration would have to be made, excepting giving a little more piping, and if not required for company to inspect the contents, the path might be narrowed; but even this could only be done to a very slight extent. This house is represented in *fig.* 1.

It will be seen that the house is span-roofed, the shorter span being to the north, a fixed louvred lanthorn forming the apex. Air is given not by any movement in the louvre, but by a flap board, about a foot wide, turning on a pivot on the inside, and allowing the heated air to escape by the louvre. This flap is moved with very little trouble, the pivots being so arranged that it always closes of its own accord; it is held open by a string, without the aid of any costly machinery. The front lights also open if required in very hot summer weather, but otherwise the flap is quite sufficient. The roof is fixed, and is glazed with 26-oz. glass, the squares being about 28 inches by 7 inches. The glass was stronger than was generally used at the time the house was built, thirteen years ago, and the squares smaller, but I believe we have not had more than one broken pane in the roof all that time, and only occasionally one in the front, and that through accident. I advise those having such structures to build to use no glass thinner than 26-oz. to the foot where the squares are under 2 feet super each, and where they exceed that size to have stouter glass. I wish some one who has had a dozen or twenty years' experience with cheap houses would give us his experience, as now and then I think there must have been heavy glaziers' bills.

Le me now go to the heating, and in this lies our weak point. Instead of four we ought to have six pipes under

the shelf that runs along the front, and I am not sure that eight would not have been still better, as the house contains a greater volume of air which must be kept warm than most structures of the kind. More fuel is required to keep up the requisite heat by the four pipes than would suffice had there been six or eight; but at the time the house was erected these matters were not so well understood as now, and, as it has hitherto worked well, we have not made any change. I ought, however, to say that it was at first arranged to grow Pines on the turning-out principle, and there are two pipes beneath the bed covered over with rubble, &c., in the usual way. In some years Pines were grown on this system, but accidental circumstances suggested a change, and the last three years we have grown them in pots on a tan bed. This plan having given more fruit during the winter months is that which I would most recommend, as the tan bed also has the important advantage of assisting in the heating by supplying bottom heat in abundance; in fact, so much at times that there is danger of injury if it is not carefully attended to, but with judicious management it may be kept within proper limits. It is a very convenient material to work amongst, and retains its heat a long time; as its management is a very important feature I will describe it hereafter.

Fig. 2 represents a useful pit for Pines, and many growers prefer such a one to the more elaborate house; where Pines only are grown the pit is certainly more economical, as the volume of air to be heated by artificial means is much less in a pit than in a house. Pines thrive as well in the one structure as in the other if the heating apparatus and other conditions to success are duly attended to. The hot-bed may either be of tan or leaves; if the latter, the space required will have to be larger—in other words, deeper than where tan alone is used.

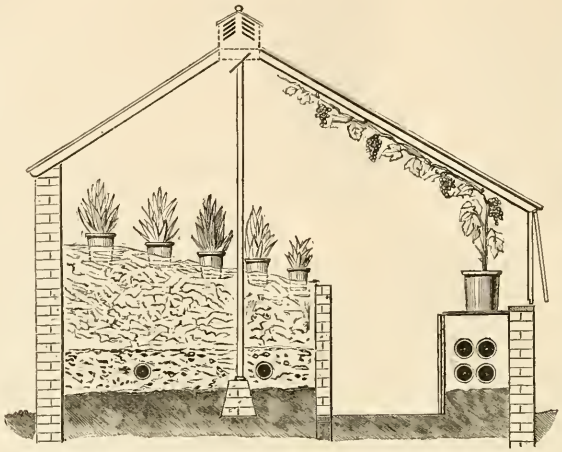


Fig. 1.—Pine House, with accommodation for Cucumbers, Pot Vines, and Dwarf Kidney Beans.

The length of this house is 86 feet, its width 14 feet 6 inches. The width of the pathway is the same as that of the doors at each end—2 feet 10 inches. The front shelf is 2 feet wide, and the width of the tan-bed 7 feet 3 inches in the clear. The front lights, about 2 feet high, are hung on hinges at the top, and open to admit air.

There are many modifications of pits more or less resembling that described, some of them having only two hot-water pipes in front, which in many cases will be sufficient, especially if coverings to the glass are used in severe weather; or three pipes may be placed vertically, so as to give more space for the hotbed—a matter not to be lost sight of. With this view I have advised the partition dividing the hotbed from the pipes to be of boards only, as occupying less space than brickwork, and although they will not last very long in such a position they are easily replaced, and are easily taken out to clear away the tan and other dirt amongst the pipes. I have found them more convenient in every way. When required, troughs for water may be placed upon the top pipes. I prefer moveable troughs with a saddle-shaped bottom to fit the pipes, not those forming part of the pipe itself, for such are always troublesome to clean out; these troughs we have always in use in the Pine house whenever fires are employed, and the same are necessary in pits.

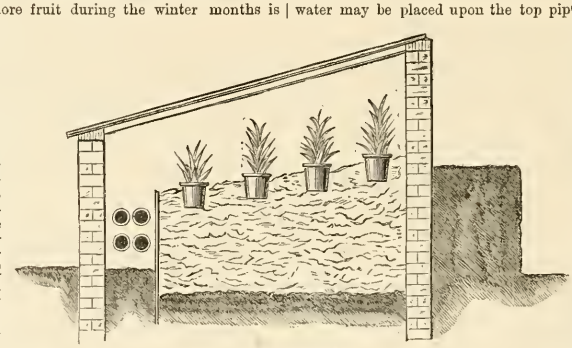


Fig. 2.—Pine Pit.

The principal drawback to the pit is the inconvenience at shifting time, the plants being necessarily exposed to the open air more or less while the work is going on. If it were not for this, pits would be more convenient than houses; but one or two shiftings are required during the winter, and however judiciously done as regards the choice of weather, they are an inconvenience if not a positive injury to the plants. Good management will obviate much of this, and excellent Pines are often grown where there is no house; in fact, I believe the very best are often found in such places. The whole of the lights are moveable in such pits, the

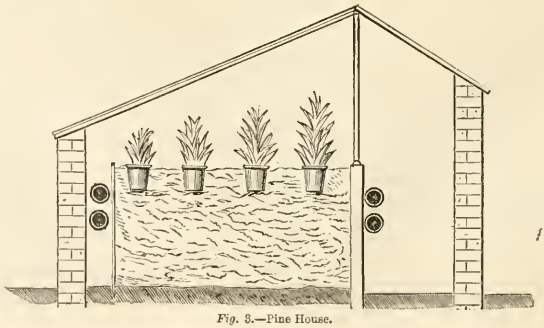


Fig. 3.—Pine House.

front generally low, and a raised pathway along the back to enable the gardener to give air, inspect the plants, and water them with a long-spouted watering-pot. The pathway need not be raised much if the pit is sunk, which it can be without any disadvantage in perfectly dry ground, but not in wet ground.

Fig. 3 represents a Pine house with a path along the back, the roof over which may be of slates or any other material that is cheaper than glass, as it is not necessarily wanted to give light. The pathway is 2 feet 6 inches wide, including the space for the two pipes as shown. There are also two pipes in front separated from the heating bed by a boarded partition, the same as described for the pit. The glass roof may be entirely fixed if required, some contrivance being made at the ridge for the ventilation, which is not shown in the drawing. The back wall of the heating bed may only be as high as is required for the heating material, and being half a brick thick, may be finished off with a timber coping the same as in *fig.* 1, but in this case small pillars at distances, say, of 6 feet will be wanted to support the roof, as shown in the section. These pillars may either be of wood or iron; those of the house (*fig.* 1) are necessarily of the latter material, as they are partly buried in the tan bed, which would speedily destroy wooden pillars. The other features of the house will be easily understood. The entrance is opposite the pathway, and the end may be all brickwork, although if made of glass from the top of the pots upwards it will be all the better. The heating material is the same as in the other cases.

Besides the structures above described there are many others, some of them affording better means of inspecting the plants. Houses consisting of a central bed with a spacious pathway all round look very well, but as the cost of heating a pinery is very considerable to all but those who live within a short distance of a coal-pit, I have thought it advisable to recommend that every inch of the space heated should be occupied by plants, reducing the space for paths to the utmost. In some houses there is only a path through the middle, and a bed on each side. This class of house is very convenient, and when in connection with others of a like character used for other purposes, answers very well.

Pines are also often grown in the centre bed of a Grape house, the Vines being trained under the rafters, leaving a considerable amount of open space under the centre of each light; but it is better to have a house entirely for Pines, for in winter the latter require heat, while the Vines ought to be at rest. The Pine Apple is an accommodating plant, and will endure a great amount of hard usage, but true economy will be displayed in not overtaxing its endurance, and a more satisfactory as well as a cheaper result would be obtained by giving it some kind of plain structure to itself, or if associated with other inmates let them be like those mentioned at the beginning of this article. I have often seen young plants growing on a dung-heated bed in summer, and firmer and broader-leaved plants it would be difficult to see than they usually were, but they will not winter in such a place, and decay soon sets in when the dark days come on.—J. Robson.

ROYAL HORTICULTURAL SOCIETY.

June 5th, 6th, and 7th.

This Show, which opened yesterday, and will be continued to-day and to-morrow, promises to be one of the most successful the Society has ever held in London. The weather the first day was true June weather, not that mingling of winter and spring which we have so long had. The company was numerous—extremely numerous—and that which they came to see was well worthy of being seen. The plants were well grown and splendidly bloomed; the fruit equally good, and by those not in the tents in the morning simply unapproachable. The fruit always is. This obstructiveness is a tendency of the daughters of Eve, and the sons of Adam give way—nay, are obliged to do so. There was in addition the attraction of Mr. Anthony Waterer's Exhibition of Rhododendrons, to which we shall refer hereafter.

Stove and Greenhouse Plants.—Foremost among the many fine collections of these is that of twelve from Mr. Baines, gardener to H. Micholls, Esq., Southgate. This coutains a plant of Ixora coccinea upwards of 4 feet high, and about 3 feet in diameter, bearing a profusion of magnificent heads of bloom, many of them quite 6 inches across—the plant is only two years and nine months old from the cutting. Ixora aurantiaca, Statice profusa, Aphelexis macrantha purpurea and humilis rosea, and Franciscea confertiflora are also very fine. Anthurium Scherzerianum has eighteen splendid large spathes. Erica tricolor Wilsoni, Cavendishii, and the other specimens in this collection are also of high merit, especially Dracophyllum gracile minus. The group received, as it well deserved, the first prize, the second going to Mr. J. Wheeler, gardener to J. Phillpott, Esq., Stamford Hill, who has very good plants of Franciscea confertiflora, Clerodendron Balfourianum, Aphelexis humilis rosea, Acrophyllum venosum, and others. Mr. Donald, gardener to J. G. Barclay, Esq., Leyton, is third with a great bush of Erica Cavendishii, Stephanotis floribunda in fine bloom, Clerodendron Balfourianum, Dracophyllum gracile, Aphelexis humilis rosea, and Rhynchospermum jasminoides.

In the amateurs' class for six (Class 2), Mr. Baines is again first, showing a magnificent specimen of Erica ventricosa coccinea minor fully 4½ feet in diameter, in the most profuse bloom; Hedaroma tulipiferum, also large and in splendid condition; and Ixora aurantiaca, gorgeous with its rich reddish-orange heads of bloom. The other plants in this collection are a large and fine specimen of the Cavendish Heath, a fine Azalea Iveryana, and an excellent specimen of Boronia pinnata. Mr. J. Ward, gardener to F. G. Wilkins, Esq., Leyton, is second with, among others, a splendid specimen of the beautiful rose Dipladenia amabilis, and fine examples of Dracophyllum gracile, Aphelexis macrantha purpurea, and Hedaroma tulipiferum. Mr. Kemp, gardener to the Duke of Northumberland, Albury Park, Guildford, is third.

In the nurserymen's class for six, Messrs. Jackson & Son, Kingston, are first; and Mr. Williams, Holloway, second. These groups contain fine specimens of Aphelexis macrantha purpurea, Azalea Coronata, Anthurium Scherzerianum, and Heaths.

In Class 4, for amateurs who have not previously taken the Society's prize for stove and greenhouse plants, Mr. Bones, gardener to D. McIntosh, Esq., is the only exhibitor, and takes a first prize, having a very good Anthurium Scherzerianum, but several of the spathes past their best, and well-grown small specimens of Rhynchospermum jasminoides, Clerodendron Balfourianum, and others.

Class 5, was for twenty stove and greenhouse plants in 12-inch pots. Here Messrs. Jackson are first with well-grown Heaths, Aphelexids, Pimeleas, Acrophyllum venosum, Clerodendron Kæmpferi, and Hedaromas, for the most part in excellent bloom. The second place is taken by Mr. Ward, who has neat specimens in fine bloom, notably Adenandra fragrans, Allamanda Wardleana or Hendersoni, Statice profusa, Franciscea Lindeni, Rhynchospermum, Clerodendron Balfourianum, Dracophyllum gracile, Hedaroma Hookerianum, &c. Mr. Kemp, Albury Park, is third. For nine plants in 12-inch pots, the prizes went to Mr. J. Wheeler, Mr. G. Wheeler, gardener to Sir F. H. Goldsmid, Bart., and Mr. Kemp.

Fine-foliaged Plants.—Of fine-foliaged there are numerous noble specimens, and none more so than those in the group of nine shown by Mr. Baines. In this are his two remarkable Sarracenias—Drummondi alba and flava—which have before been fully described, Croton variegatum large and beautifully coloured, fine plants of Yucca variegata, Theophrasta imperialis, and noble examples of Dasylirion acrotrichum and Rhopala corcovadense, together with Cordyline indivisa and Acanthophœnix crinita. M. Alexis Dallière, of Ghent, is second with Dracæna lineata, cannæfolia, Livistonia borbonica, and Marantas. The third prize goes to Mr. G. Wheeler, gardener to Sir F. H. Goldsmid, Bart., Regent's Park. For six Mr. W. Cole, gardener to J. S. Budgett, Esq., Ealing Park, is first with a fine Croton variegatum, a grand plant of Dracæna australis, and Pandanus javanicus variegatus. Second comes Mr. Donald with Pandanus elegantissimus very fine, a large Latania borbonica, Maranta Veitchii, and Yucca aloifolia variegata. The third prize is taken by Mr. F. Hill, gardener to H. Taylor, Esq., Avenue Road, Regent's Park, with a fine Croton variegatum, Pandanus Vandermerschii, Latania borbonica, Maranta Veitchii, and other plants, all of them excellent specimens. For twenty Mr. Bull is first with a fine plant of the beautifully variegated Curculigo recurvata, Dracænas, Palms, and Encephalartos Vroomii.

Orchids.—In the open class for twelve Exotic Orchids, Mr. J. Ward is first with a good pot of Odontoglossum Alexandræ and O. Bluntii, Cypripedium Stonei with one fine spike, and Dendrobium McCarthiæ, a species with very handsome flowers. Mr. W. Bull, of King's Road Chelsea, is second with, amongst others, the singular Oncidium cryptocopis, Cypripediums superbiens (Veitchii), and Hookerii. Mr. J. Wheeler is third. Of six Exotic Orchids (amateurs), Mr. G. Wheeler is the only exhibitor, and gains the first prize. In the nurserymen's class, Mr. B. S. Williams, Upper Holloway, exhibits a splendid group—Saccolabium guttatum Holfordianum with seven highly-coloured spikes; Vanda tricolor Schilleriana, with two splendid spikes, twelve flowers on a spike; Cattleya Warneri, Aërides Lobbii, &c. Mr. Bull is second; in his collection is a fine Oncidium macranthum hastiferum. Messrs. Jackson, Kingston, are third. Mr. Bull shows the best single specimen, Epidendrum syringothyrsus.

Heaths.—Of these there is a remarkably fine display, very much that is extremely good, nothing bad. The best six, from Mr. Ward, comprise fine plants of tricolor Wilsoni, elegans, and

candidissima. Mr. J. Wheeler is second with nice plants about 2 feet in diameter. For nine Mr. Ward is first with specimens somewhat too closely trained, but admirably bloomed, varying from 3 to 4 feet in diameter. The most notable are Erica Massoni major, Candolleana, ventricosa magnifica, tricolor elegans, and obbata. Messrs. Jackson come in second, also with very good specimens; and for twelve the first and second prizes go to the same exhibitors, Mr. J. Wheeler being third.

Pelargoniums.—In the open class for nine, Mr. Ward, gardener to F. G. Wilkins, Esq., Leyton, is first with splendid plants, several of which are upwards of 4 feet in diameter, and beautifully bloomed. Lilacina, Rose Celestial, Caractacus, Patroness, Mdlle. Patti, and Exhibitor are the most notable. Mr. Weir, gardener to Mrs. Hodgson, The Elms, Hampstead, is second with much smaller plants; and Mr. James, gardener to W. F. Watson, Esq., Isleworth, third. In the amateurs' class for six plants, the first prize was taken by Mr. Bones, gardener to D. McIntosh, Esq., Havering Park, Romford, with specimens about 2½ feet in diameter, Mr. Weir being second. For six Fancies, Mr. Donald, gardener to J. G. Barclay, Esq., Knott's Green, Leyton, is first with finely bloomed plants of Lucy, Mrs. A. Wiggins, Ann Page, Belle of the Season, Undine, and Mrs. Ford. Mr. Bones is second, and Mr. Weir third, each with plants in excellent bloom, those from the former being neater in growth. In the nurserymen's class Messrs. Dobson, of Isleworth, have a second prize.

Ferns.—For six stove or greenhouse Ferns, amateurs, Mr. Baines is first with magnificent specimens of Gleichenia speluncæ and flabellata, Cibotium princeps, Dicksonia antarctica, Cyathea dealbata, and Davallia bullata. Mr. Donald is second with fine young specimens; Alsophila excelsa and Dicksonia squarrosa are noticeable. Third comes Mr. N. Camp, gardener to C. Walton, Esq., Manor House, East Acton. In the class for amateurs who have not previously taken the Society's prize for Ferns Mr. Donald is first, and Mr. J. F. McElroy, gardener to A. J. Lewis, Esq., Manor Lodge, Campden Hill, Kensington, second.

Twelve hardy Ferns, distinct (amateurs), is always an interesting class, and the varieties of Athyrium Filix-fœmina exhibited on this occasion are particularly elegant. Mr. J. James, gardener to W. F. Watson, Esq., of Isleworth, is first. A. F.-f. plumosum; A. F.-f. Elworthii, finely cut and tasselled; A. F.-f. Vernoniæ and multifidum are the best. Mr. N. Camp, gardener to C. Walton, Esq., Manor House, East Acton, is second. For six hardy Ferns, Mr. W. Kemp is first, a Polypodium, Dryopteris, and Adiantum Capillus-Veneris are pretty. Mr. G. Wheeler is second; his collection contains a fine Lastrea spinulosa. Mr. W. Whittaker, gardener to S. Williams, Esq., The Laurels, Putney, is third. Mr. G. Wheeler takes a first prize for a pair of Dicksonia antarctica on tall stems.

Roses.—Messrs. Paul & Son, of Cheshunt, exhibit nine handsome specimens and gain the first prize. Juno, pale rose; Madame Margottin (Tea); and Horace Vernet, are very fresh. Messrs. Paul also exhibit forty-eight beautiful trusses, and gain the first prize. Duc de Rohan is very fine. Messrs. Paul and Son are also first with twenty-four trusses. Messrs. Kelway and Son, of Langport, are second with a box of twenty-four Tea Roses.

Liliums.—Of six distinct Lilies in pots the only exhibitor is Mr. W. Bull, and to him the first prize is awarded. L. Szovitzianum, a highly fragrant species, the flowers pale yellow with dark spots; L. umbellatum fulgidum, and L. Thunbergianum nigro-maculatum, are the best.

Gloxinias and Achimenes.—There are but few of these. For the former Messrs. Rollisson, of Tooting, are first with the Rev. H. H. Donibrain, a fine crimson-scarlet variety, Skeltoni, Marietta, and others. For the latter Mr. Bones is first with well-grown plants rather too leafy, and Mr. G. Wheeler second.

Baskets of Plants arranged for effect.—Mr. Cole, gardener to J. S. Budgett, Esq., Ealing Park, is first with a basket elevated on a wire stand covered with Lycopods, and neatly filled with Begonias, Dracænas, and a Palm. Miss Williams, Holloway, is second; and Mr. Whittaker, The Laurels, Putney, third. Mr. Ware has also a beautiful basket of flowers; and Messrs. Dick Radclyffe & Co. likewise exhibit.

Pyrethrums.—Of these several fine stands are shown. Messrs. Kelway, of Langport, are first, Mr. Ware second, and Mr. Parker, Tooting, third. Messrs. Veitch also exhibit in the miscellaneous class.

Cacti.—J. T. Peacock, Esq., Sudbury House, Hammersmith, who has, we may venture to say, the largest collection in this country, offered prizes for the best collection of fifty, his own not competing. We believe this amounts to something like six thousand plants, and these the most rare and curious to be obtained. Only one exhibitor, however, has come forward—Mr. Pfersdorff, 110, Avenue St. Ouen, Paris, and his collection, we understand, has been at once purchased by Mr. Peacock, who himself exhibits a very choice collection of Mammillaria, Echinocactus, Echinops, Opuntia, &c.

New Plants.—For six the first prize went to Messrs. Veitch for Adiantum speciosum with a good deal of the fine aspect of farleyense, Dieffenbachia brasiliensis, Dracæna spectabilis, Croton Youngii, Dracæna amabilis, and Aralia Veitchii. Some of these, as well as the following, have been already reported upon. The second place is taken by Mr. Bull, of Chelsea, who has Erythrina Purcelii, with a well-marked yellow variegation along the midribs and veins; Alocasia illustris, handsomely marked with dark blotchings or cloudings; Bertolonia superbissima, a real gem, beautifully spotted with rose; Croton majesticum, very fine; Dieffenbachia nobilis, with large white-blotched leaves; and Croton spiralis, with dark olive-green twisted leaves, almost black, contrasting in a striking manner with the brighter green of the younger growth.

In Class 47, for two new plants shown for the first time in or out of flower, Mr. Bull exhibits Lilium Washingtonianum, having a white flower with small crimson dots, very pretty. For a new plant not in flower, introduced by the exhibitor, and not in commerce, Messrs. Veitch are first with Aralia Veitchii, and Mr. Bull second with Croton majesticum, with orange red, dark brown, and yellow variegated leaves, according to their age. Mr. Baines sends a remarkably fine Sarracenia called maxima. For a new plant in flower exhibited for the first time, and introduced by the exhibitor, Messrs. Veitch take a first prize with the splendid Hibiscus rosa-sinensis miniatus semi-plenus—a very long name; but the flower is magnificent, measuring more than 4 inches in diameter, and so double that many would call it so. For twelve new plants sent out in 1870 or 1871, Messrs. Veitch are again first with, among others, the lovely miniature tree Fern Todea Wilkesiana, Begonia Sedeni, Nepenthes Sedeni, Croton Hookeri, a beautiful golden-marked kind; Davallia Mooreana, extremely fine; Dracæna Mooreana, Dracæna Dennisoni, and Pandanus Veitchii. Mr. Bull is second with Dieffenbachia Bowmanni, Bertolonia guttata splendens, beautifully marked with rose spots; Davallia Mooreana, and the singular Godwinia gigas. For three new plants in or out of flower, sent out by the exhibitor, Messrs. Veitch, likewise take first, showing Croton Weismanni, a fine golden-marked kind, with leaves of medium width; Paullinia thalictrifolia, so like a Fern that one might mistake it for such, a very graceful plaut; and Pandanus Veitchii. Mr. Bull is second with Macrozamia corallipes, a small-growing species with deep green graceful leaves; Kentia Fosteriana, a handsome Palm; and Maranta Seemanni.

Messrs. Veitch exhibit a group of new plants in the miscellaneous class. It contains the curious Darlingtonia californica in fine condition; a fine basket of Begonia intermedia, a handsome variety with showy orange-scarlet blossoms, and Begonia Sedeni, very fine.

Miscellaneous.—Mr. Pestridge, nurseryman, Uxbridge, sends a collection of Tricolor Pelargoniums in baskets; Mr. Turner one of Ivies, also of cut blooms of Tree Carnations and Picotees, which are remarkably fine; Mr. Ware a fine group of Irises; Messrs. Veitch and Mr. Parker also exhibit these. From Messrs. Dobson, Isleworth, come well-bloomed Calceolarias; from Messrs. Rollisson a large mixed group bordered with Gloxinias; from Mr. A. Stelzner, Ghent, a group of Gymnogrammas; from Mr. Ware, Tottenham, and Mr. Hooper, Bath, Pansies; from Messrs. Hooper & Co., Covent Garden, a grand collection of Ixias and Babianas; and, again, from Mr. Ware a beautiful collection of cut blooms of herbaceous plants and Pansies. Mr. Kelway, of Langport, exhibits a fine white-ground Pansy called Great Eastern. Artificial flowers are excellently represented in the exhibition of Messrs. Adcock & Co., of Prince's Street, Cavendish Square. Mrs. Bray, Stamford Villas, Fulham Road, S.W., sends some beautiful examples of skeletonised leaves, and Mr. Louis Bassnets, Ghent, a charming collection of dried Grasses.

FRUIT.

From the Show being continued for three days, one would have supposed that there would have been but few entries. It is not so, however. A larger aud better lot of first-class fruit has not been staged at the summer show for many years.

Two fair collections are staged. Mr. W. Lynn, gardener to Lord Boston, Hedsor, Maidenhead, is first with a handsome Smooth-leaved Cayenne Pine, Black Hamburgh and White Frontignan Grapes, exceedingly fine Dr. Hogg Strawberries, Victory of Bath Melon, Peaches, Nectarines, and Figs. Mr. Bannerman, gardener to Lord Bagot, Blithefield, Rugeley, Stafford, is second, and has a very good Queen Pine and Black Hamburgh Grapes, excellent Peaches and Nectarines.

Pine Apples.—In the class for three Queens, Mr. D. Wilson, gardener, Castle Hill, South Moulton, North Devon, is first with nice fruit which have remarkably small crowns; Messrs. G. & N. Yates, Market Place, Manchester, are second; and Mr. John Hepper, gardener to C. O. Ledward, Esq., The Elms, Acton, third. In the Any other variety class Mr. D. Wilson is first with a very large handsome fruit of Smooth-leaved Cayenne, but it is rather past its best; Mr. Bland, The Gaer, Newport, Monmouth, is second; and Mr. J. Douglas, gardener to Francis Whitbourn, Esq., Loxford Hall, Ilford, is third with Charlotte Rothschild.

Grapes.—Class 55.—Basket of not less than 12 lbs. There are

nine very good baskets. Mr. G. Sage, Ashridge Park Gardens, Great Berkhampstead, is first with a well-finished basket, the berries large, black, and with a beautiful bloom. Second, Mr. M. Henderson, gardener to Sir G. H. Beaumont, Cole Orton Hall, Ashby-de-la-Zouch. Mr. Craven is third; and an extra prize goes to Mr. T. Bannerman. Class 56.—In Black Hamburgh or Frankenthal, single dish, Mr. Douglas is first with three very fine bunches, the berries large, jet black, and well finished. Messrs. Wright, Turner Road, Lee, Kent, are second with handsome compact bunches; Mr. G. Sage, third; an extra prize being awarded to Mr. M. Henderson. Class 57.—Black Grapes, any other variety, Mr. Bannerman is first with Black Prince; Mr. Lynn being in the second place with the same variety. Class 58. —Single dish of Muscat of Alexandria; Mr. G. Osborne, manager, Kaye's Nursery, Finchley, N., is placed first with three bunches weighing 3¾ lbs. Mr. D. Pizzey, gardener to Sir E. Perry, Fulmer, Slough, is second; Mr. W. Kemp, gardener to the Duke of Northumberland, Albury Park, Guildford, third. Both dishes are unripe. In the Frontignan class Mr. W. Kemp is first with well-ripened White Frontignan; Mr. Pizzey second with the same variety; and Mr. Bannerman third with very pretty bunches of the Grizzly variety. Any variety of White Grapes except those indicated above.—All the prizes went to Buckland Sweetwater. Mr. Douglas is first with magnificent examples, large in bunch and berry. Mr. Craven is second, and Mr. Rowe, The Rookery, Rochampton, third with well-ripened fruit. Golden Champion was sent by Mr. M. Henderson, huge in berry, but unripe.

Peaches are magnificent. Mr. J. Brown, gardener to Earl Howe, Gopsall, Atherstone, worthily holds the first position; his Grosse Mignonne are truly grand. Mr. W. Gardiner, gardener, Lower Eatington Park, Stratford-on-Avon, is second with very fine Royal George; third, Mr. G. T. Miles, gardener to Lord Carrington, Wycombe Abbey, with the same variety.

Nectarines are also very fine, and, with one or two exceptions, highly coloured. Mr. G. T. Miles is first with Elruge; Mr. W. Gardiner second with the same variety. Very large examples of Violette Hâtive, but without the name of owner, are third, an extra prize being awarded to Mr. G. Sage.

Figs are very good, and are principally of the Brown Turkey variety. Mr. G. T. Miles is first, Mr. G. Sage second, and Mr. C. Ross, gardener to C. Eyre, Esq., Welford Park, Newbury, third.

Cherries.—But two dishes of Cherries are shown in the two classes. Mr. Miles is first with Elton, and he has a similar award in the class for Black with Black Circassian, the fruit in both cases being very fine.

Strawberries.—In the class for British Queen, Dr. Hogg, or any other light-coloured variety, Mr. Douglas is first with Davey, Esq., Colston Basset, Bingham, Notts, is first with Colston Basset Seedling, the flavour very rich. Mr. Bannerman is second with a pale-fleshed hybrid; Mr. Lynn third with Victory of Bath. In Scarlet-fleshed Mr. Douglas is first with Scarlet Gem; Mr. Lynn second with the same sort; and Mr. Miles third with Royal Ascot.

In the miscellaneous class Mr. Ross shows two well-kept dishes of Cornish Aromatic Apple, Mr. Miles a box of splendid Tomatoes, and a very good brace of Blue Gown Cucumber is sent by Mr. J. Browne.

Fruit Committee.—*June 5th.*—G. F. Blenkins, Esq., in the chair. Mr. Gough, gardener to J. Putley, Esq., Lower Eaton, sent two heads of Broccoli. Mr. Bailey, of Amersham, sent specimens of Bailey's Superb Cabbage, a good close-hearting early variety. Rev. A. Rawson, of Bromley Common, sent stalks of Monarch Rhubarb, a large green variety. Mr. Piccirillo, of Wigmore Street, sent specimens of Marzajola Onion or New White Silver Tripoli, grown in Naples. Messrs. Criscuolo, Kay, & Co., Gracechurch Street, sent roots of the true Early White Nocera Onion, imported from Naples. It is a small silver-skinned variety. The same firm sent specimens of a fine large variety of Lemon, called Sorrento Lemons. Mr. W. Robins, gardener to Sir E. C. Kerrison, Bart., Oakley Park, Scole, sent a cluster of four Telegraph Cucumber, the total length of which was 6 feet 10 inches. Mr. J. Gardner, gardener to Col. Astley, Elsham Hall, Brigg, sent a brace of Marquis of Lorne Cucumber, 30 and 29 inches long respectively; one of them a very handsome fruit. Mr. C. Ross, gardener to C. Eyre, Esq., Welford Park, sent fruit of a seedling Melon called Welford Park, scarlet flesh. It is a small yellow-netted fruit with pale pink flesh, and being not ripe an opinion could not be formed on its merits. Alfred Smee, Esq., F.R.S., sent a dish of the old White Joanneting Apple, perfectly ripe from a vinery, to which a cultural commendation was awarded. Mr. Frost, gardener, Dropmore, sent a plant of "Edible Passiflora," the flavour of which wa very disagreeable. Mr. A. Colbourne, gardener to J. Blyth, Esq., Woolhampton, sent some remarkably well-grown fruit of Loquat, the flavour of which was excellent. It received a cultural commendation. Mr. Eckford, gardener to Lord Radnor, Coleshill, sent fruit of a seedling Grape called White Hamburgh, which was very deficient in flavour.

Floral Committee.—*June 5th.*—Mr. J. Fraser in the chair. A first-class certificate was awarded to Mr. Weatherill, Finchley, for forcing Pelargonium Captain Raikes, orange scarlet with a brownish crimson blotch veined with crimson, pale rose edge and throat. Two baskets of flowers of the same were also shown. It is certainly a very free-flowering variety, likely to be useful for market and decorative purposes. Mr. Eckford, gardener to the Earl of Radnor, Coleshill, also exhibited a lilac-flowered Pelargonium; and of Zonal kinds there were seedlings from H. Little, Esq., Mr. B. Porter, Isleworth, and others. Mr. C. Pfersdorff, 110, Avenue St. Ouen, Paris, had a first-class certificate for Euphorbia Habana monstrosa; Messrs. Downie, Laird, and Laing one for Botryodendron magnificum with beautiful shining green leaves 11 inches long by 5 wide.

Messrs. E. G. Henderson & Son, Wellington Nursery, sent some garden varieties of Begonia, and among them B. magnifica, a fine scarlet; likewise new Tricolor Pelargoniums, and herbaceous Calceolarias. From Dr. Denny, Stoke Newington, came Richard Cœur de Lion, scarlet Zonal with very large flowers of a fine scarlet; also Nelson, fine in colour with a violet flush, but not quite up to the mark in form. For the former a first-class certificate was awarded. Mr. Lee, florist, Arundel, also had a first-class certificate for Tree Carnation Model, cream white.

Mr. Denning, gardener to Lord Londesborough, Grimston Park, had a cultural commendation for a splendid collection of Orchids, and a first-class certificate for Utricularia montana, a remarkably free-flowering epiphyte with white semi-transparent flowers, having a yellow palate.

Messrs. Dixon & Co., of Moorgate Street, had a first-class certificate for Petunia King of Crimsons, very double, rich crimson purple; and Mr. Ware, Tottenham, had a similiar award for Pansy Pluto, almost black, also for Aquilegia aurea. Mr. Holmes, Lichfield, sent a good Bronze Pelargonium; the Rev. A. Rawson a Zonal called Maia, from which most of the bloom had been shaken off; Mr. J. C. Cocks, gardener, Clapham Park, a free-blooming drooping Gloxinia called Mauve Queen; and Mr. W. Cunningham, Burton-on-Trent, Pelargonium Bridal Bouquet, a pleasing light variety, though not a florists' flower.

Mr. Moore, gardener to C. Leach, Esq., Clapham Common, exhibited good examples of Odontoglossum hastilabium; and Provost Russell, Falkirk, had a cultural commendation for cut blooms of Orchids, among which were very fine Cattleyas, Saccolabiums, Anguloas, and Cypripediums. From Messrs. E. G. Henderson came a pretty fringed Pelargonium called Empress of India, a lady's flower.

Mr. Denning had a first-class certificate for Nanodes Medusæ, recently figured in the "Botanical Magazine," and similar certificates were awarded to W. B. Kellock, Esq., for Yucca Treculeana, Puya coarctica, and Dasylirion glaucum; also to Messrs. Dixon & Co. for a variety of Pteris serrulata cristata. E. B. Foster, Esq., of Clewer Manor, had also first-class certificates for Pelargonium Prince of Wales, crimson rose, dark blotch, veined with scarlet towards the edge and shading into rose; Druid, veined rose, painted top, edged with rose; Duchess, dark top, edged with scarlet, white throat, crimson lower petals; Countess, soft rose, white throat, dark top, edged with rose; Highland Lassie, Scottish Chieftain, Ruth, Robin Hood, and Senator. Blue Bell had a second-class certificate.

DINNER-TABLE DECORATIONS.

I feel the thorough justness of the remarks made by Mr. Lucking, my friend Mr. Peach, and "F. R. H. S." I have said, and still maintain, that such a method is only suitable for a club or public company, and were I set down at a private table to such an arrangement I should at once say it was "snobbish." I say this, because the object of a dinner party is not to admire decorations or to turn everything topsy-turvy for them, but to meet friends and eat your dinner; and where tables had been cut and cloths also, I should have concluded that not the comfort of the guests but the glorification of the host was had in view. This is, I believe, the great difference between the dinner table of the true gentleman and that of the man who wants to be considered as such. In the one, the comfort and pleasure of the guests are the considerations; in the other, what will they think of my decorations, my wine, my *chef's* dishes, &c.? and everything is made to centre round this one point. But what were the exhibitors to do? It was the first time Miss Hassard (who, let me say, has invariably taken prizes wherever she has shown), tried it; and if she had any inkling of who the Judges were to be, she exercised a wise discretion in departing from her usual *rôle*. But at the

same time let me do her the justice to say that, had she not done so, it is most likely she would have adopted some other plan equally effective, and that quite independently of the Ferns. The simplicity of the whole arrangement was its charm.

I am excessively sorry that this plan has received the sanction of the Royal Horticultural Society, but at the same time I am quite convinced that it will never make way. I should like to know how many persons of good position will be influenced by the show, and say when they get home, "Well, we must have our dinner tables altered and adopt this new plan." I am no diner-out, but I have never seen it attempted, and am glad to find that Mr. Peach corroborates my views as to its rarity. I fully endorse, too, all that has been said on the impropriety of such an expenditure on a matter which can in no way affect the interests of horticulture. When I recollect that the finest collection of plants that can be exhibited would only be rewarded with half the money, one feels forced to cry, Shame on such an outlay as this!—D., *Deal*.

FORCED STRAWBERRIES FAILING.

Mr. Record asks me ("E. T. J.") what was the state of the Strawberry roots at the time of being introduced into heat. I answer it was very good, as that is a point I am always anxious about, knowing that I can expect no good result either in fruit or flower if the roots are not as they should be. I have for several years protected the plants in a six-light cold pit, with air on night and day when the state of the weather would permit, and in time of frost been careful to exclude it. I layer the runners, as soon as I can get them, in 3-inch pots, and shift into 6-inch pots, generally the last week in July. Although my first lot was a failure, and I expected the succession would go the same way, since the weather has become drier the disease has ceased, and the fruit has swelled and ripened beautifully. My third lot look as if they would be better still.

I fully believe the failure in the first place chiefly arose from the long continuance of dull wet weather, for I never remember such a cold April and May as we have had this year. Some years ago I lived at a place in Yorkshire, where every season we forced from six hundred to seven hundred pots of Strawberries, and as soon as they were all potted in July they were plunged to the rim of the pot, and no covering of any kind was put over them in winter, yet they always did well. I have assisted in taking them up and placing them in gentle heat at once, and I do not remember a single failure. The kinds were Princess Alice Maud and Keens' Seedling.

I am much obliged for the communications on the subject, as I think it desirable that gardeners should report failures as well as successes, for all are liable to such disappointments at times.—E. T. J.

GRAVENSTEIN AND DUCHESS OF OLDENBURGH APPLES.

Can you tell me whether I am right or wrong in considering the Gravenstein and Duchess of Oldenburgh Apples alike? I have this week been hunting through and comparing many sorts in my collection, amongst them the two sorts named above. In these I find no difference as regards their growth, wood, and leafage; I am therefore afraid that I have not secured the two sorts, although I have tried for several years to do so. I have procured trees under both names from several of the best English collections; I have also done so from the best continental collections, but the result has been the same—I have only one sort. Whether it is the Gravenstein or the Duchess I cannot make out, and in my distress have applied to you for aid. I have before me the descriptions of Thompson, Lindley, Hogg, and Downing, also the description and figure of the Gravenstein in the fourth volume of the Horticultural Society's "Transactions," yet I cannot decide whether the two Apples are alike or not. I have never seen any figure of the Duchess excepting the one in Downing's "Fruit Trees of America" and Ronalds, and the two figures are exactly alike, which you will see by a tracing which I send. The descriptions, too, I think are so much alike that they lead me to suppose that the two fruits are the same.

Appended I quote descriptions of both fruits, and although one fruit is said to be German and the other Russian, yet there is a doubt about the Gravenstein being German. Some say it is Italian; but may it not be Russian? As the parentage is disputable it is as likely to be the last as the first; and there is this peculiarity in the Gravenstein that makes me inclined to think it of Russian origin—viz., that nearly, if not all transparent Apples are of that country, and therefore my notion that the Gravenstein and the Duchess of Oldenburgh are alike.

Description of the Gravenstein by Thompson.—"Shoots strong [same as my trees] *dark purplish* red, sprinkled with whitish dots; leaves rather large, broad, ovate, acuminate, and serrated or acutely crenated." As far as the above goes all my trees of the so-called two sorts agree, with this addition, that the pubescence and venation are alike, also that in many of the leaves, from both trees, one side of the expanded portion is a little longer than the other; the length of the petioles is also alike.

Description by Downing. "Young wood *reddish brown*." As the descriptions of Lindley, Hogg, and Downing agree in most particulars I need not quote them, but merely point out the discrepancies between Hogg and Downing. As regards the Duchess, Dr. Hogg says, "Eye large and *closed*, with long broad segments, placed in a deep angular basin." Downing says, "Calyx pretty large and nearly closed, set in a wide even hollow." This is the only difference in description of any import, and that is reduced to a minimum.

I find that all the continental writers give August and September as the months when the two fruits are ripe (ripe here in September generally). I have not been able to find a coloured figure anywhere excepting Ronalds's, and this is very like a Gravenstein.

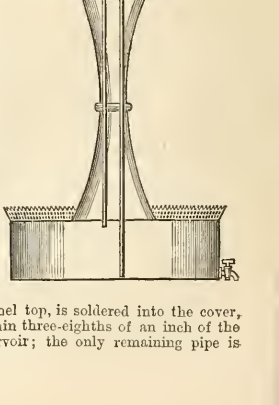
I do not know that I have made myself clearly understood. Will you kindly give your opinion of the two fruits, and say in what they differ? I may have only obtained one for both, and hence my perplexity.—J. Scott.

[The two Apples Duchess of Oldenburgh and Gravenstein are certainly quite distinct, not only in appearance of the fruit, but in its duration. The former is a regularly shaped Apple with broken streaks of red on its surface, a long slender stalk, and ripens always in the middle and end of August, and rarely keeps longer than September. The Gravenstein is an irregularly shaped fruit, frequently knobbed round the basin of the eye, which is also higher on one side than the other. The skin is covered with red on the side next the sun and streaked with crimson, and all its cells are wide open, while only some of those of Duchess of Oldenburgh are so. The fruit will keep till Christmas. The flavour of Gravenstein is rich and spicy, and it is in every way a superior Apple to Duchess of Oldenburgh, which has little besides its earliness to recommend it.—Eds.]

SELF-ACTING FOUNTAIN.

In answer to "Amateur," and other inquirers as to how a self-acting fountain may be made, we reprint the following from our eighteenth volume:—

The annexed sketch represents a fountain 30 inches high, which is not very expensive or difficult to make by anyone who can use a "copper bit." The top reservoir is a 14-inch galvanised iron basin, with a flat zinc cover soldered on; the centre, for about 4 inches diameter, slightly sunk; the base is a zinc reservoir of larger capacity than the upper one; the shaft or pillar is also of zinc, with a bead round the centre by way of ornament, the whole soldered together; the jet is the nose of a large-sized carpenter's oil-can, with a piece of compo gas pipe long enough to reach nearly to the bottom of the bowl, soldered to it; the tube shown, with a slightly funnel top, is soldered into the cover, and passes through to within three-eighths of an inch of the bottom of the lower reservoir; the only remaining pipe is



fixed with one end opening into the top of the lower, and the other under the cover of the upper reservoir. A piece of ornamented perforated zinc relieves the plainness of the top and protects the tube, and at the base forms a guard for soil in which Ferns, &c., grow.

To work it :—Unscrew the jet and fill the top reservoir, refix the jet and place your finger on the aperture, pouring water at the same time down the open top tube until the air is sufficiently compressed to resist the ingress of any more ; the water will then flow to the height of 18 or 20 inches for the space of half-an-hour. To repeat, draw the water from the tap, and perform as before.—(*English Mechanic and Mirror of Science.*)

BLACKBURN HORTICULTURAL SOCIETY.

The above Society held their second Exhibition on the 29th and 30th of May ; and we are induced to notice it because the establishment of a horticultural society in such a large, busy, and thriving town as Blackburn, is undoubtedly a step in the right direction, for in no town that we have visited, either at home or abroad, have we been so forcibly impressed with the total absence of window plants. With high or low, rich or poor, plants form no ornaments to the windows. This is a great misfortune, for horticulture is a great humaniser and softener of the heart, and tends more to home enjoyment than many are willing to admit ; but so surely as the cottager is induced to grow a few window plants and a few border plants, so surely will his happiness and the happiness of his family be increased. The frequent absence from home is changed, he stays at home to tend his plants ; thus he is thrown more into loving contact with his wife and family than formerly occurred during his leisure time ; he finds how much more enjoyable are such scenes to those of dissipation, which are too often indulged in by those having no hobby to employ their mind upon during their cessation from toil.

To effect such a change in the population of Blackburn is one of the chief reasons this Society has been started ; and as the President, R. B. Dodgson, Esq., and Vice-President, Capt. Shaw, are such enthusiastic plant-lovers, and so popular and well known among the inhabitants, there is a good prospect of the Society flourishing and working-out an immense amount of good. Equally fortunate also is the Society in its selection of a Secretary, for unquestionably Mr. Ditchfield, who holds that post, is at once painstaking and kind in the extreme to all coming in contact with him.

The plants exhibited were, taken as a whole, of unusual merit for such a young Society to produce, and in some instances such as have never been surpassed at any floral display. Two examples of this may be given : the first, a splendid plant of Odontoglossum nævium majus in the most robust health, and bearing twenty-five splendid spikes of flowers. This was staged by R. B. Dodgson, Esq., and was undoubtedly the gem of the Exhibition. Following closely in the wake of this, however, was a magnificent specimen of the richly-coloured Dendrobium Dalhousieanum exhibited by Capt. Shaw ; it was of gigantic proportions, and in speaking from memory, we are afraid to say how many spikes of its grand flowers hung gracefully from its long pseudo-bulbs. Other Orchids were shown in excellent condition, as were also Azaleas, stove and greenhouse plants, ornamental-leaved plants, Scarlet Geraniums, Show Pelargoniums, Fuchsias, Heaths, Cinerarias, Calceolarias, bouquets of wild flowers, table decorations, and British and exotic Ferns.

The Exhibition was also considerably enhanced by a choice collection of plants sent from Upper Holloway, London, by Mr. B. S. Williams, not for competition, but merely to assist the Society to increase the public interest in its doings. Another collection of a similar character was staged by Mr. H. Walton, of Burnley.

The large prize for Cucumbers offered by the Society was not responded to in the manner it deserved, but we trust another year to see their call bring out both more and better plants. It is also proposed, we believe, next year to more thoroughly enlist the sympathies of the working classes, by giving prizes for window plants.

PUTTERIDGEBURY.

(*From a Correspondent.*)

Mr. John Sowerby, to whom reference is made on page 443, was a native of Carlisle, and the family still hold property there. The inducement to purchase the estate was the fact that Mrs. Sowerby had been born on that property. He first purchased Lilley House, now the site of one of the best farms, which used to be celebrated for its Walnuts and the production of the finest fruits, as Apricots and Peaches. Lilley might be truly described as "Lily in the valley," and Putteridgebury Park as "Putteridge on the hill," as it feels the force of every wind that blows. The estate was the result of continuous purchases and additions. About 1812 the house at Lilley was accidentally burned down, and the present mansion at Putteridge, with the stables and offices, was built. The house of 1788 was on the site of the present farmhouse—nay, I believe that the main walls of the building are the same. In the transformation effected, evidence was afforded that it is often much more expensive to improve and modernise an old building than to pull the old building down and build all afresh.

One inducement for building the new house at such an elevation was no doubt the number of old trees that remained ; but, unfortunately, long before Mr. Sowerby had thought of building a house there he had cut down many fine trees, as timber brought such a high price during the French war.

During the time of Mr. John Sowerby's occupation horticulture was confined to a small kitchen garden, with a glass house or two and a few frames, and I have often been told that there were great regrets felt for the comfort and the finer produce of the Lilley gardens.

Mr. John Sowerby was succeeded by his eldest son, William Sowerby, who, being lame from an accident, could not do much to improve the estate, but whose chief hobby was the keeping of race horses, purely from the pleasure he felt in the animals, and not in the least as a matter of speculation. On his decease he was succeeded by the next brother, the late Colonel Sowerby, who laid out conservatories, corridors, flower gardens, and pleasure grounds, and for twenty-seven years did so much to improve the estate, the farm-steadings, and cottages, that the neighbourhood was completely changed. No man could more thoroughly feel the responsibility of acting as a good steward for the benefit of the estate and the interests of those who were to succeed him. The neat farm-steading, a *ferme ornée*, was built by him.

On Colonel Sowerby's decease he was succeeded by the next brother, George Sowerby, Esq., who enlarged the house accommodation, and on his decease, after some three years' occupation, was succeeded by his eldest son, George Sowerby, Esq., who has already made great improvements in changing the open corridors into glass-covered structures, heating them to make them comfortable in winter, erecting a rustic fernery close to the mansion, making suitable improvements in the farm-steadings belonging to the estate, and though last, not least, vastly improving the home farm-steading by changing the open yards into airy, roomy, covered sheds, where all the processes of feeding, attending, &c., can be most easily and economically managed. These arrangements have been carried out under the superintendence of Mr. Greenwell, the land steward of the estate. A large Dutch barn has also been erected, and as all buildings are well spouted, the increase of water is a great advantage.

WOODSTOCK PARK.—No. 1.

The Residence of the Right Hon. W. F. Tighe.

This has of late years risen to be one of the most distinguished illustrations of British gardening. Descriptive details of this residence have appeared in our Journal, but since then great improvements have been made, and improvements still go on ; and as this is a place to be visited by travellers, and where designers will find the most varied and abundant matter for copying, we think it is instructive as well as interesting to carry down periodical reports.

Woodstock Park is situated in a fine part of the country, between Waterford and Kilkenny, about five miles from the Thomastown railway station. On reaching the ruinous-looking village of Thomastown the scenery assumes a varied and beautiful character. Here we meet the silvery Nore washing one side of the village. The old walls are hanging full of Pellitory ; great masses of Honseleek cling about the old houses. The extraordinary quantity of Ferns growing on the walls and trees here are sure indications of the climate we are in. Here also begin the old castles, which stand like a line of forts all the way by the river, at from one to two miles distant, some forty miles to the sea. The second one from Thomastown, Dysart, is the birthplace of the famous Bishop Berkeley. What a lovely spot this is ! What a wonderful story might be written on these castles ! What a singular blending along this road is that of the modern mansions with the towering old castles ! On nearing Woodstock the scenery grows richer in points of interest, and when we pass through the Turkey Oak avenue into the romantic-looking village of Inistioge, the scene is perfectly unique.

Inistioge is in the barony of Gowran, and near the river Nore. An abbey is said to have been there as early as the year 800, but it is certain that one dedicated to the Virgin and St. Colomb, the patrons of the town, was founded there for Augustinian canons in the year 1210, and was surrendered to Henry VIII. in the thirty-first year of his reign. The estates belonging to the abbey were granted to Edmund Butler and his heirs by Queen Elizabeth.

To a stranger this town of Inistioge is striking, and it takes some time to master the scene. The entrance to the village is screened by a mass of old Ivy-covered ruins. By the side of these ruins a modern church and a large chapel stand close together. Looking from this standpoint the eye fixes on a scene of great boldness and grandeur; the houses seem perched on the top of each other up the steep hill. Nothing could be more picturesque than the way in which the houses stand; there has been no artificial levelling here, they are placed at every imaginable angle and aspect. The whole village has a clean, orderly, and trim appearance; the houses are substantial, the shops good, with a thriving air, and there is an hotel where a prince might comfortably lodge. Where shall we again meet such hearty and polite attention as travellers get from Mr. and Mrs. Butler?

The park comes close into the town on the lower side, but the main entrance is some distance above the town, up a very steep road.

As our time is limited we are advised to go to the "Red House" by the lower road if we wish to see the real beauty of Woodstock, and as we made a long journey to take note of its beauties we start on the lower road. On starting we are again close to the Nore, which comes boldly through a fine stone bridge of ten arches, and this bridge is itself a sight. All the wall between the cope and the arches, the whole length of the bridge, is covered as thickly as can be with Ivy, mixed with the red Valerian, now in bright bloom. It is a wreath worth going to see. This road is on the right of the river; on the left the

Woodstock.

ground expands into a fine sheep-walk well studded with trees. Here are the four-year-old Southdown wethers that supply the mutton so well known at hospitable Woodstock; over us is a bank of shelving rock some 300 feet high, on the upper edge are tufts of the Silver Fir which have a fine effect. Some ninety years ago Arthur Young spoke in raptures of this Mount Sandford. This bank continues about half a mile with only the road from the river to the rock. A great variety of natural wood covers every inch that is not sheer rock, and pendents of Ivy are seen hanging 20 feet or more from the branches of the trees. This bank changes in a bold sweep from the right to the left of the Nore, and has been beautifully planted by the present owner. On the right, or Woodstock side, the ground rises on an easy slope to the top of Mount Alto about 1000 feet above the river; this is about two miles distant, and finely wooded to the top.

The sweep of the river where the bank changes sides is grand, and on this point of land the old mansion stood for centuries. It is a very solitary spot; the rising ground and woods exclude the thickly-populated country on the north of the river. A pretty cottage stands on the site of the old mansion; a curious alcove terrace still remains to show that artistic gardening had been here effectively done ages ago. Fine groups of trees are dotted over this lawn-looking pasture, and right opposite is seen a charming waterfall, roaring and leaping into a fine salmon pool. There are some old Yew trees at this spot, and we notice that the trees are browsed by the cows grazing on the lawn. It is about 130 years since the new mansion was built, and ever since that time cattle have been grazing about these Yews—the stems of some of them with twigs like an Irish Yew—and never has any ill effect been known to come to the animals from eating the Yew. It is clear from this that cattle are not injured by eating Yew in a *fresh* state from the tree.

We are still a mile from the Red House, but we now enter a forest scene, the bank again changing to the right side, the rock disappearing, and the height insignificant. The Oak trees in this wood are the best we have seen in Ireland. From the road only glimpses are now caught of the river. The wonderful growth of natural wood is here interesting. Hundreds of acres of Holly may be seen in a stretch. It is most interesting to observe in these woods how certain classes of trees select ground. Over the whole extent of the woods the Holly seems to grow freely in a natural state. The Silver Fir springs up freely on certain places, where it may be seen from 100 feet high in all stages to this year's seedling. The Spruce appears in a far less proportion than the Silver Fir. The common Pine springs up freely, and there are many fine old specimens of this noble tree. We could not discover one Larch from seed. The Larch planted thrives well, and there are some large old trees; it is noteworthy that the Larch does not take to the soil here under such favourable circumstances.

At the Red House we are again, at the edge of the river. Here we observe that there is a "tide." Looking out at the windows of this beautifully-kept picnic house, the river is very fine; looking back to where it dies out of sight in the wooded banks near the old mansion, it is like a beautiful lake with thick-wooded islands, and the water is enlivened with pleasure boats, and a whole fleet of "cotes" fishing for salmon.

From the Red House we turn to the right up the glen along a crooked path, and are directly in front of a waterfall with steep banks on each side, which seem to forbid farther progress. However, we scramble up a rugged path and find a very pretty Swiss cottage. This cottage is "private," which is rather amusing when the housekeeper presents the volumes of names of those who have enjoyed themselves in this romantic spot, and have left written effusions that would be worth a fortune to those who deal in manufactured literature. Farther we must go to see the trees, and the ups and downs, and crossing slippery stones and bridges of difficulty, bring to mind long-forgotten portions of the "Pilgrim's Progress."

Such masses of Hypnum splendens! and here the Filmy Fern could be lifted by the square yard. Then we come upon ten square yards of Royal Fern in one mass, with fronds 6 feet high. In this glen we find Pinus excelsa growing most luxuriantly. This tree we greatly admire as it is seen here. The Deodar is also very promising; more of the Cryptomeria should be planted in this glen; the Rhododendrons are spreading with amazing rapidity; the Norway Maple and Thorn Acacia are growing into fine trees, and will be a grand picture in this glen in the autumn. A few Araucarias are planted here, but they are not promising. We must now leave the wild woods and turn to the gardens at Woodstock.

LLOYD'S WALL-TREE AND PLANT PROTECTORS.

The increasing uncertainty of obtaining fruit from trees on open walls, makes us the more readily draw attention to each protection that is suggested. Mr. Lloyd's "sash wall-tree protector," as shown below in *fig.* 1, has brackets fastened to

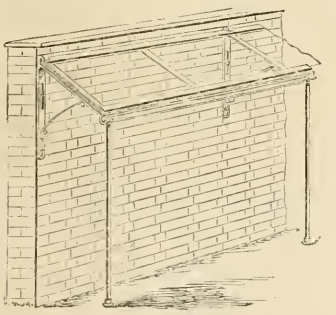


Fig. 1.

the wall, on which is placed the sash, and shut down. Then place the earth-plate perpendicularly under the spike on the bracket; press the tubular iron pillar sufficiently down into the earth, through the plate, until you can slip the tube on the end of the spike; fasten the tube by the nut on the plate, and all will be firm together. You will now put in your gutter, slip the glass in position, and all is fixed.

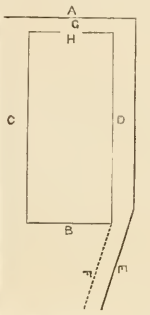
Fig. 2.

Fig. 2 is Mr. Lloyd's "portable dwarf span-roof greenhouse." In glazing it, take off the moveable fillet on the front edge of the sash, slide in the glass, and screw down again, which secures the glass in position.

HEATING A SPAN-ROOFED GREENHOUSE.

I shall be much obliged if you will give me some advice as to how to set about heating with hot water my greenhouse, a span-roof, 25 feet by 10 feet, of which the accompanying is a rough plan.

My great difficulty arises from want of space for a stokehole outside for the furnace; I cannot have one without the greatest inconvenience owing to my confined space. Would it answer to have it on the left-hand side of the door, with an iron grating to lift up or down? Of course, this would be constant trouble. Or could the furnace be placed at the south-east corner, and the pipe in passing round the house be sunk so as to be below the floor at the entrance? Or would you recommend one of the iron stoves and boiler to be placed inside the house, or a gas-stove, if it could be used without injury to the plants? With respect to the last two plans, I must say from experience that I have not much faith in expedients of this sort, and would rather, if possible, have something that there is no doubt about. Will you add what size of pipes should be used, and what sort and size of boiler? Could not the latter be placed inside the house under the stage and fed from the outside? Any further information will be most valuable, as I am entirely ignorant on the subject of hot-water heating.



A. North end
B. South end.
C. West side—small garden.
D. East side—narrow yard.
E. Buildings.
F. Fence.
G. Passage 3½ feet wide.
H. Door.

Of course, if it were not for the dust, it would be pleasanter on snowy nights to feed the furnace from inside the house, or, at any rate, under some sort of cover. Could this be managed?—C. A.

This is just one of those cases which, simple though it is, involves as much consideration as heating a range of houses. No doubt "C. A." thought he had told everything to enable one to give a reply as to the different plans he proposes; but these things he forgets—the height of the house at the apex, and the internal arrangement of the stages.

The entrance door being at the north end, and in the middle of the end, I should conclude that he means the path to be up the middle, and the stage or platform on each side, one of the most economical arrangements in such a house. For a house from 12 to 15 feet in width, it might be better to have a central platform and a narrower stage or wide shelf all round the sides. The matter is important, as from the limited space of the passage and yard on the north and east side of the house, the possibility of having a stokehole there depends on the shallowness of the stokehole, and the consequent greater elevation of the pipes inside of the building. These pipes could be considerably raised either under the sides or the central stage, and then a stokehole from 3½ feet square, and from 2½ to 3 feet in depth would answer well, as if the boiler were chiefly inside of the house, though covered over with its flues, there would be abundance of room to use a short-handled shovel, and no great depth would be necessary. A very deep and a very narrow stokehole is unpleasant to work, as there must be a sort of ladder to get up and down. True, "C. A." may sink the pipes as he likes, either under the doorway or beneath the path altogether, having a grating over it; but the lower the pipes the lower in proportion must be the stokehole, and he must go down into something like a well instead of only two or three steps.

There is another point that strikes me—though there is little room on the north or east-side passages, Is there not room in the little garden on the west side? In all such cases where a stokehole is to be outside, and its top is used as a pathway or merely as a protection from wet, &c., nothing answers better than two hinged wooden lids—say, if the width is from 3½ to 4 feet, the lids made in two pieces so as to open more easily and conveniently.

Under the circumstances and to avoid sinking, I would have a small rather flat saddle boiler, have that inside the house,

and merely sufficiently covered to secure a flue over it. I would use 3-inch pipes on the level, and take them all round the house, merely missing the doorway without any sinking, as the more pipes are sunk the less heat they give out to the atmosphere of the house. I often advise and practise the sinking of pipes in a trench for certain desirable purposes, but I never suppose that as much direct heat can be obtained from such pipes as from those fully exposed.

These matters being attended to, I see no objection to the first proposal, to fix your stokehole and chimney on the left-hand side of the doorway—that is, in the north-west corner. In this case I would advise that the pipes be carried along the west, south, and east sides as far as the doorway, raising them to that point, say, 3 or 4 inches, place an air-pipe there, and have both pipes on a level, the one the flow and the other the return.

As there seems to be more room the furnace might be equally well fixed at the south-east corner; but instead of sinking the pipes as "C. A." proposes, I would have T pipes fixed in the boiler for the flow and return, and take one set along the east side as far as the doorway, and the other set going along the south end and the west side. This plan, though likely to answer equally well, is a little more complicated.

Gas stoves often do very well, but I have no faith in heat from gas so far as plants are concerned if the products of combustion are not carried out into the open atmosphere. This winter I had too good proofs of what a few hours of gas-burning would do, even for illuminating purposes at night. The more impure the gas the worse its effects. I have come to the conclusion, that even for lighting-up plant houses with gas there is no plan so safe as that adopted by some of our great jewellers, who burn the gas in a case outside and cause the light to be reflected inside.

A common iron stove, with close-fitting doors, about the centre of the house would be far safer than gas; and if the funnel is kept clean and the ashes are damped before moving, little dust need be made. Still, such a stove requires care, and should have a flat top to have a vessel of water kept on it. If the care can be given, this is by far the cheapest and easiest mode of heating a small house so as to keep out frost.

The proposed stove boiler as advertised so frequently would be an improvement if it could be so fixed as to be fed from the outside. By adding pipes you could place it at the most suitable corner. If without pipes, it should stand at the centre of the house on the east side. Without water-pipes added, the advantage of such a stove is, that the sides, lined with water, rarely become too hot. Even this evil can be remedied in a common iron stove, say 15 inches square, if the firebox is fixed in the centre and there is 1½ or 2 inches all open round it, or if the firebox is lined throughout with firebricks.

In all such stoves, with or without hot-water pipes, much depends on the working and the close-fitting of furnace and ashpit doors. If I had to heat such a little house with a stove, when once the fire fairly burned I would regulate combustion entirely by the ashpit door. Even in a large house I have found an opening in the ashpit door of 1 inch long and one-sixteenth of an inch wide quite sufficient to keep up a slow regular combustion of fuel, and thus maintain a regular temperature.

Leaving iron stoves and boilers out of consideration, if economy were the object, and the side walls were sufficiently high, I would fix a brick stove on the east side, say 24 to 30 inches square, and from 36 to 42 inches in height, to be fed from the outside, the top of the stove to be covered with iron or stone, and the flue to come out at the side instead of at the top, the opening for the flue pipe to be fully 12 or 15 inches from the top. With such a small brick stove fed from the yard I should have no difficulty in keeping the plants in such a small house safe from frost. A brick stove is just safer than an iron stove, in the heat given off being milder and more continuous; though a little experience would enable anyone to do what he liked with a common iron stove; and for small houses I venture to say there is no such economical plan of heating as by an iron or a brick stove, merely with a chimney from it and no other flue. The secret in such cheap heating by stoves is to bear in mind that the stove is the reservoir of heat, and without even the use of a damper, the free egress of heat must be avoided; that must be regulated by the air admitted at the ashpit opening. I had an old-fashioned iron stove that had done more than its work before it came into my hands, nevertheless it kept out the frost, except in very severe weather, from a lean-to house 75 feet long and 11 feet wide. I have a smaller one in its place, not so effective because it is so much smaller. In both cases a horizontal pipe is taken some 24 inches from the stove—it ought never to be longer—and that pipe terminates in a sort of cesspool for soot, &c., and from that a 9-feet 3-inch pipe goes through the roof as a chimney. When a fire is lighted this 9-feet pipe becomes hot, but when it is desired to concentrate the heat in the stove, by leaving just a little opening at the ashpit door I can have the stove very hot, whilst the upper part of the pipe chimney is quite cool. When people try these things they are utterly amazed at what a small iron stove, or a brick stove a little larger, can accomplish. For all small houses, as respects fuel and general heating, there is nothing so economical as a stove. The next most economical mode of heating them is by a flue, and especially if, for convenience, it is placed beneath a pathway.

"C. A." has a hankering that even for his little house he should be able to attend to the fire in a snowy, rainy night without being exposed. With more room in the passages and narrow yards he could easily cover that part over and thus protect himself. With the difficulties in his position and with this desire for comfort, I would lessen the size of the house from 25 feet in length into 20. I would make the fire-place at the south end—shut off by a door and glass division—into a stokehole and potting-house, which would hold on shelves numbers of plants, as half the space would do for the stokehole, and when that was covered over the whole space would be at command. The chimney might either be at the south end or the east side—better the former—and a door could open from the greenhouse into this heating, potting, and preserving department. A small door at the south end would afford admission to it for the cleaning of furnace, supplying fuel, &c., so as not to interfere at all with the general greenhouse, and many things might be brought on in this stokehole-greenhouse.

I have shown that in our practice for large affairs nothing equals hot water. For small solitary houses I would never use it, as both in material for heating and the heating medium, it is so expensive, as there is no comparison between heating thousands of feet and some 20 to 30 feet run. In the latter cases I believe that stoves are the most economical. If you add cheapest and best, then I say that a small simple flue is best. Now, in the present case, if I were in "C. A.'s" position I would make pathway up the middle of the 10-feet-wide house. I would shut off 5 feet at the south end, and there fix the furnace, as already indicated. I would have the chimney at the middle of the end or east side as most suitable. A boiler and hot water may be used, but I should prefer a simple flue. A flow to the doorway entrance, and back again to the chimney would be ample. Supposing the pathway to be in the middle of the house, I would take that flow and return flue under the pathway, having the surface covered with tiles on purpose. Two 5 or 6-inch flues would be ample, a flue from the furnace right round to the chimney. Two bricks on bed, with joints, and thin tiles, and thick tiling over them, would be sufficient. Such flues under a pathway make it very pleasant to walk upon in cold weather in winter. No heating medium is seen; and though, after much practice, I consider iron and brick stoves to be by far the most economical mode of heating small detached houses even in these days, yet for single houses not more than 50 feet in length, the small flue under the pathway has many conveniences. All the heating is thus concealed.

If I were going to begin commercially I would do much with stoves and flues, though nothing equals hot water where a large extent of glass has to be heated. Many cannot realise the fact that, though hot water is best for thousands of feet, it may not be equally good for hundreds of feet, because in relative proportions there is no analogous loss in the heat from a small and a large boiler. For many small greenhouses I have no hesitation in saying that to combine neatness, simplicity, effectiveness, and economy in heating, nothing that I have met with will beat the small shallow flue under the pathway, the tile or brick of the pathway forming the top of the flue. One advantage of this mode is, that such a shallow flue does not require a deep stokehole. Thus, suppose that the bottom of the flue is 8 inches below the level of the floor, that the furnace-bars are 18 inches below the bottom of the flue, and the bottom of the ashpit door 6 inches lower still, then a depth of 2 feet 8 inches, or a few inches more, would be sufficient for a stokehole.

There have been so many inquiries on these matters that I

hope to be excused for making "C. A.'s" letter a sort of text for stating my opinions. On the whole, then, if I had ranges of houses to heat I would never think of using any mode of heating except hot water. Even for small houses, where a high uniform temperature has to be maintained, I would prefer hot water. For small isolated houses, say from 20 to 40 feet in length, and where merely a safe temperature to keep plants from frosts and tempests has to be secured, then hot water is the most expensive mode which can be tried. Stoves, iron or brick, are far more economical. I have often found that two pecks of coke have done more to counteract frost in a stove than seven pecks under a hot-water boiler. The small contracted flue, as alluded to above, is not quite so economical as the stove, but it is more easily managed, and is far more economical as respects fuel, than the boiler, whatever may be its position or shape. Where neatness—concealment of the heating medium—is to be combined with economy, then I would urge having a flue under the pathway. A small house I thus heated by a flue for something like one-fifth part of the lowest tender I had for hot water, and I am quite sure that the fuel used is not more than one-third of what would be required for a boiler. Even in a common iron or brick stove a little attention will enable one to concentrate the heat round the stove. Use dampers as you will, the heat will go off into the air from a hot-water apparatus. This is of less consequence when thousands of feet are heated from one boiler, but it is of consequence when you heat only some scores or a few hundreds of feet. After all, the great question returns—and that I wish to keep in view—Why should not thousands have their little greenhouses in winter and early in spring heated by stoves and flues, who dare not venture on hot-water heating?—R. Fish.]

BASKET PLANTS FOR THE STOVE.—No. 4.

Torenia asiatica, although an old inhabitant of our stoves, must be reckoned amongst the handsomest and most suitable for basketwork that an amateur can grow. It has a robust free-growing habit, and yields an abundant crop of beautiful flowers. It belongs to the order Scrophulariaceæ. The leaves are opposite, cordate-acuminate, serrate at the edges, and light green in colour. The flowers are produced from the axils of the leaves; they have a short tube, and a broad, spreading, four-lobed limb; the ground colour is intense deep purple, whilst the tips of each lobe are china white.

This plant succeeds admirably in a mixture of rich loam, peat, and leaf mould in about equal parts, with the addition of some sharp river or Reigate sand. In the basket should be placed a thick coating of sphagnum moss in a growing state, before putting in the soil, sphagnum being so eminently adapted for the purpose, as it will grow rather than decay as common moss does when placed in similar positions. This Torenia is a common plant in the East Indies.

T. pulcherrima.—This plant is of similar habit to the preceding, but a greater trailer, a circumstance which renders it a fit subject for suspending in the stove. Its flowers are deeper purple than those of T. asiatica, and its leaves somewhat hairy and dark green.

Before leaving these plants I must here remark that they are liable to the attacks of mealy bug, but a little care and occasional cleaning will keep them free from the unsightly pests of our plant houses.

Coccocypselum repens.—I do not introduce this plant to the notice of my readers on account of its showy flowers, for the truth is that they are most unpretending, but because these are followed by a profusion of beautiful deep blue berries, which continue in perfection a long time. The plant is worthy of a place in the first rank as a basket plant for winter decoration, a fact which should recommend it to the attention of all lovers of horticulture. I have, however, frequently remarked that amongst amateurs in particular there exists a disposition to discard plants which have no attractions during the summer; and thus while basking in the beauties of Flora, they entirely forget that with the fall of the leaf in autumn come a dearth of flowers and long dreary months, which are made still more dreary by the cultivator's own indolence in summer, when plants might easily have been provided to rob winter of one-half of its dreariness.

I have usually found this plant succeed well in a mixture of loam, peat, and sand, and that the temperature of the greenhouse is sufficient for it during summer. It must be liberally supplied with water at the roots, and frequently syringed in order to keep away red spider, for if this pest be allowed to gain a footing amongst its foliage the plant will lose half its beauty during winter, through having but few leaves to set off its bright ultramarine berries. It is a native of the mountain regions of Jamaica.

Russelia juncea.—This plant belongs to the order Scrophulariaceæ, and is exceedingly useful both for planting amongst rockwork in ferneries and also for hanging baskets. It is a free-growing plant, with long, pendulous, dark green, somewhat angular, rush-like shoots, from which are produced from the end of June to the end of August a profusion of tubular bright coral red flowers. Without these, however, it is a very ornamental plant, and is well deserving the notice of all plant-growers, from whom it has not received the attention due to its merits, although it has been an inhabitant of our plant houses about forty years. It succeeds well grown in peat, leaf mould, and sand, with a little loam added, and should be very liberally supplied with water.

Sarmienta repens.—This is the only species of the genus at present known, and is a native of Chili, from which it may be inferred that a warm greenhouse, or at most a cool stove, will suit it well. It is a trailing plant, and is peculiarly adapted for suspending in a basket, or planting upon rockwork in a fernery or conservatory, arranged upon what is called the natural system. The leaves of Sarmienta repens are opposite, ovate, fleshy, and slightly hairy, whilst from the ends of the shoots are produced its tubular, rich, deep scarlet flowers, which render it very attractive. It should be grown in a mixture of peat, good leaf mould, and sand, with the addition of some sphagnum moss, and be liberally supplied with water; therefore the pot must be well drained.—Experto Crede.

WINTERING BEDDING PELARGONIUMS WITH OR WITHOUT A GREENHOUSE.

I shall first briefly describe the effects of the common method of keeping bedding Pelargoniums during the winter.

Suppose the month is October, the flower-beds are still beautiful, and the horticulturist contemplates his garden with delight. No faded leaves are there yet, but tasteful arrangement, beauty of form, brilliant colours, and fragrant perfumes delight every sense, and our florist in making a tour round his garden enjoys one of the highest pleasures given to man. But his meditations are interrupted by his gardener.

"I will take up the bedding stuff next week, sir, and will want five or six hundred new pots."

"Can you not leave them out till November or December? The white frosts will not materially injure the plants."

"All right, sir; I will wait till the end of November. December would be rather late."

November comes; the gardener gets the new flower-pots, and commences the gigantic task of taking up and potting the bedding plants.

I will not investigate at present how he manages the Calceolarias, Verbenas, &c.; our business is to see how he treats the bedding Pelargoniums. He pots them very neatly, cuts away luxuriant growths, and fills the greenhouse, vinery, &c. There are some dozens of plants to be lodged yet: these are put into cold frames. This done, the Pelargoniums look very well and are covered with blossoms.

It is now January. December has been frosty and sloppy. One avoids the garden; it looks so wretched now that the summer flowers have gone, and the spring flowers not yet come. The garden is a wilderness, cold and bleak; yet we will take courage and have a look at our Pelargoniums. We first go to the greenhouse. The plants look very middling; the leaves are limp, the flower-trusses half blooming, half withered; still they seem likely to survive the winter. We next visit the cold frames, and the Pelargoniums there present the following appearances: the tops of the stalks are rotten and quite black, the flower-stems are completely withered. The gardener is hard at work picking off dead and dying leaves, or rather all the leaves, and he very properly cuts away the rotten stems and dusts the wounds with charcoal.

Bedding time comes, and the Pelargoniums in the houses are slowly regaining their good looks, whilst those in the frames are either half alive or quite dead. In short, the best part of the bedding season is lost, as the Pelargoniums do not come into full leaf and flower until August.

The method of managing Pelargoniums I would recommend is to commence propagating them at the beginning of June. The first day of June have your pots and labels ready, put three cuttings of each sort in a pot, and label them. The best soil to

use is a mixture of loam, leaf mould, silver sand, and a slight sprinkling of charcoal. Place the pots on coarse gravel or lime rubbish. House the plants at the commencement of October.

When the greenhouse is filled with plants do not put the remainder in cold frames, as they are quite unsuited to the Pelargonium, but place them in a spare room or outhouse, which must be rain-proof, light, and airy. Open the windows every day except during severe frost, and water your Pelargoniums whenever they require it. Pick off all dead leaves, cut off decayed stalks, and put a pinch of powdered charcoal on the cut to prevent bleeding. By adopting this plan you will have plenty of flowers during the winter months, and well-furnished plants for bedding-out in May.

When bedding-out, turn the plants out of the pots, and plant them in the open ground; do not prune them until June. The prunings will answer for cuttings; plant them as directed, three in a pot.

Should you wish to save the old plants at the end of the season, take them up in October, and hang them roots upward in a dark dry place. Start them on a hotbed in March.—Arachne, *An Irish Spider who spins her webs not far from the Liffey.*

Sale of Orchids.—On May 30th Mr. J. C. Stevens sold 303 lots of Orchids, the total sum realised being £150. Oncidium sarcodes sold for £7 10s., and Trichoglottis fasciata for £11.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Take advantage of the present showery weather to finish the planting of any crop not yet in. Prick out from the seed beds the young plants of *Broccolis*, *Kales*, *Cauliflowers*, &c., to become stocky by the time they are wanted. Make a sowing of *Endive*, both Curled and Batavian; they ought to be grown in everyone's garden for cooking purposes. Thin-out *Carrots*, *Parsnips*, *Beet*, *Onions*, &c., so as to allow them to attain their full growth, with the exception of any to be drawn when wanted. Autumn *Onions* planted for early use should be topped to make them bulb. Take every opportunity of destroying slugs, by dusting the vegetable quarters with quicklime on damp mornings, and in addition laying down heaps of spare vegetables as traps for them.

FRUIT GARDEN.

The Peach border should be examined where there is any danger of its being too dry for the healthy growth of the trees; give it a good watering if it requires one, for if growth is at all checked at present, and the autumn should prove wet, there will be great danger of the trees growing too late and the wood being badly ripened. Proceed with nailing, and avoid laying-in a single shoot which will not be required next season. Where insects or mildew are still troublesome, lose no time in applying the usual remedies. Persevere in the use of them until the enemy is fairly overcome, in order that healthy wood may be secured. Strawberries must be liberally supplied with water, especially on light soils of a dry hot nature, for should dry weather set in there will be no chance of securing a crop without liberal waterings. Protect Cherries with nets or fragments of tin. Birds are infinitely more troublesome in dry than in wet seasons.

FLOWER GARDEN.

The present showery weather will greatly assist the recently-turned-out plants in making their growth, and, when the plants are properly staked and pegged down, the beds should be neatly finished off. Avoid by all means, when the ground is wet, treading on the beds, which would render them too close for delicate plants to root in. Boards or other contrivances should at all times be used when the beds are being dressed, to prevent their being trampled on by the workmen, if the beds are too large to be managed without. Stakes of the proper height will have been placed at the time of planting against all plants requiring support, to secure them as they advance. Take advantage of showery weather to cut Box edgings. Thrift and other substitutes for Box should be regulated when they go out of bloom. Frequently examine Roses to stop the ravages of the maggot. Where they are wanted to bloom in August, some of the Perpetual and Hybrid Roses should now have their buds removed, and the shoots slightly thinned and shortened-back. Phloxes, Delphiniums, and some other herbaceous plants, will frequently throw up too many shoots; when tying them up thin them out sufficiently to prevent their having an overcrowded appearance, and where the plants are very large three stakes should be placed instead of one; the heads of bloom will be finer, and show to more advantage than when crowded together round one support. Seedling Pansies are now a feature in the amateur's collection. Anxiously watching every opening flower, he experiences alternately hope, gratification, and disappointment. Promising flowers should never be removed from the seedling bed till some stock has been rooted from them. Many fine seedlings have been lost by risking their removal. Rooted plants may either be placed in small pots or planted out in beds for an autumnal bloom. By proper attention flowering may be kept up almost continuously with these beautiful dwarf plants. I need not caution the growers against preserving inferior varieties. Seedling Carnations and Picotees should be now out of their first leaves, and when they have two pair of leaves, so as to be fairly handled, they may be pricked out into beds preparatory to their final transplantation at proper distances, in September, for blooming next summer. In watering these plants in pots, when moisture is applied let the soil be thoroughly soaked through. Place some fresh moss round the margins of the pots in very dry weather. Tie-up the spindling shoots. Disbud according to the strength of the plants: some are more robust in constitution than others, consequently they must be allowed to mature their blooms accordingly. Cover the capsules of Tulips intended to be saved with a hand-glass or some other slight protection; wet is apt to lodge in the apex to the certain destruction of the seed. As the foliage of offsets turns yellow they should be taken up. Seedlings should also be carefully removed, they are apt to send down a small bulb several inches in the ground.

GREENHOUSE AND CONSERVATORY.

To keep down insects in the conservatory and plant houses frequented by company is somewhat difficult, as fumigating cannot always be resorted to. On this account syringing must be well followed up on the permanent plants. Those infested, which can be removed, should be taken out and well cleaned; weak ammoniacal water will destroy the green fly, and leave but faint traces of its use in the houses afterwards. Pay every attention to keeping up the greatest neatness and order in plant houses, more especially those visited by the family or by company. The conservatory borders must at this season have frequent waterings, and should afterwards be neatly raked over. Remove Chinese Azaleas, now getting past their best, as their flowers fade, to make room for Pelargoniums and some of the more hardy stove plants. Keep the climbing plants in proper form by frequent looking-over. Shade by day, and keep down the temperature by large admissions of air, allowing a good portion to remain during the night. As before directed, pluck-off the blooms from plants directly they begin to fade; this will be the more necessary with well-bloomed specimens, otherwise they will take a considerable time to recover their lost energies. These will require to be kept some time in a cool, shady situation to induce them to break strongly. No attempt should be made to pot them, even if they require it, till the young growth has made some progress, or the loss of many delicate plants will be the result. Continue the necessary attention to Fuchsias and other soft-wooded plants which will be required next month for the conservatory. Stake neatly Japanese Lilies and other plants growing for the same purpose; as these are nearly hardy the lights need only be kept over them during heavy rains. Many of the climbers here, as Passiflora, Mandevilla suaveolens, Tecoma jasminoides, &c., will now be growing very freely, and frequent trimmings will be necessary to keep them in proper order. The young shoots should be allowed to grow in a natural manner, merely preventing their getting too much entangled, or growing in masses. The flowering of many varieties of the Passion-flower will be hastened by stopping the young shoots, and any shoot which may be hanging too low should be stopped, which will prevent confusion and induce the production of flowers. During dull cloudy weather the shading must not be used too freely, and care must be exercised to keep the atmosphere moist, giving air sparingly except on the sheltered side of the house. Let there be no crowding of the plants, but allow every specimen full space, especially hardwooded plants. It is sometimes the practice in the management of the conservatory to huddle the plants very closely together in order to produce a dense mass of bloom, and when softwooded plants only are used this is of little consequence, but hardwooded species are very readily injured in this way, and many a promising specimen is ruined. Re-

arrange the plants frequently, and at once displace any that incline to become shabby.—W. Keane.

DOINGS OF THE LAST WEEK.

A gentleman told us lately that man's life would hardly be worth living for if there were no obstacles to surmount, no difficulties to conquer. A great truth underlies this observation, common though it seem. There is much benefit derived from the bracing effect of contending with difficulties, and upon the principle involved gardeners ought to be some of the happiest and best of men. On the other hand, when obstacles and difficulties are so great that no hope of surmounting them can be seen, then these difficulties are too often preventives of extra exertion. In too many cases, even where the nominal labour would be enough, from the employers acting on the principle that what is obtained in extra jobs from the garden men is so much clear saving, the gardener too often finds that, after having carefully prepared his plans, he is unable to carry them out, because just when he wants his usual help most it is taken away from him. We say it advisedly, that such modes of management are no benefit to anyone, but that every estate is best managed where men know what they have to do and are confined each to his distinctive field of operations.

KITCHEN GARDEN.

Gave Cauliflowers elevated on banks a good soaking with sewage to enable them to swell their heads well. In the dripping weather Lettuces have been magnificent, and care has been taken to keep up successions. We had a fine show of Beet, but the frost and the birds together, we fear, have destroyed it, and we shall be obliged to sow and plant out again. The last two years the birds let the seedling plants alone, but this season these have again become very thin, and we are satisfied that it is not owing to slugs, &c. Such coloured seedlings as Love-lies-bleeding shared the same fate—the birds took them off in the seed-leaf state. When Beet 2 or 3 inches in height was planted out, as we used to do, the plants seldom suffered.

The rains having baked the ground, we ran the hoe among all small plants in rows. Notwithstanding the rains, the ground is still rather firm to permit the thinning of Onions, Carrots, &c. True, we could do this easily if we merely cut them up so as to give room to those left; but this we seldom do, as even young Onions laid-in thickly, and Carrots too, come in very useful, but if cut over they are useless. Our ground is so stiff that we never could please ourselves with button Onions; but the thinnings of Onions laid-in rather thickly in rows have given us better buttons than those we sowed on the poorest ground for that purpose.

Kidney Beans are coming well, and those partially protected are doing extremely well, so as to succeed those forced. For many years we never knew what it was to be long without this delicious vegetable, but for a season or two we have been obliged to withdraw our hand here, as with all our contriving we could not manage to keep two things in the same place at one time. Nevertheless, we say, after much experience, that nothing pays better for forcing than Kidney Beans. We have tried all plans with them, and on the whole, from November to the end of March, we think growing in pots the most profitable mode, and from November to January we prefer 6 or 8-inch pots, and 12-inch pots afterwards. Later the plants yield best when planted out. This vegetable, to families living in the country and keeping company, is worth as much as is charged for it in Covent Garden, and at a much less price would well repay for all the labour, and trouble, and heating. We have an old love for the China or Robin's Egg, but Sir Joseph Paxton is better for a free bearer. If the colour of the pods is not objected to, there are few kinds that for free-bearing beat the Negro, a black Bean.

It is rather singular that our rows of Kidney Beans out of doors are far more regular than the rows of Scarlet Runners. These have damped much in the ground, chiefly owing to the weather, and we have sown in boxes to transplant, so that there shall be no blanks. It is no bad plan to sow in boxes under protection, and then transplant when 3 or 4 inches in height. We have examined these Scarlet Runners, and are convinced that the cold and wet have been too much for them. It is just possible that the seeds that decayed were too old. No vermin had assailed them.

We could hardly say the same of *Peas*. Legions of rats have lately annoyed us, and though they did not meddle with the more advanced crops in rows just coming above ground, they made awful havoc, routing them out, even if they did not eat them, where lead-coloured. Netting, and sprinkling with soot, &c., we found of little avail. Our chief reliance was placing boards over the rows at night, and removing them in the morning. What can be expected when you hear of a thousand rats being killed at one farm homestead? What we wish our readers to keep in mind is, that to keep down all such vermin they must resort to many and varied means.

ORNAMENTAL DEPARTMENT.

Being obliged to attend to other matters, we have not done so much bedding-out as we intended, and we dislike disturbing the ground in a wet state. The work is more than usually tedious with us, as from our exposure to winds, we bush-fasten every plant that is not naturally of a procumbent habit.

We have, however, exceeded our space, and must leave all this for the present, with merely expressing our regret as to how Rose trees and bushes have suffered from the shifty weather, especially as respects the foliage. From a wall we have had good blooms for cutting for more than three weeks, but we can hardly obtain enough of fine foliage to dress them with. True, other green foliage, Ferns, &c., might be used to relieve them, but whether in glass vases, or smaller glasses holding from one to five Roses, we do not think that any other green shows them off so well as fine healthy foliage of their own. Much of our Rose foliage looks as if a hot blast had passed over it, and we fear this will affect the second and continuous blooming.—R. F.

TO CORRESPONDENTS.

*** We request that no one will write privately to any of the correspondents of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely to The Editors of the Journal of Horticulture, &c.*, 171, *Fleet Street, London, E.C.*

British Ferns (*C. W.*).—All in your list are natives, but most of them are varieties, not species.

Artillery Plant (*Amateur*).—It has many popular names, such as "Pistol-plant," "Artilleryman," and "Burniug Bush." Its botanical name is Pilea muscosa. It is a native of the West Indies, and was introduced into England in 1793.

Peach and Cherry Leaves Blistered (*William Mills*).—The leaves sent are suffering from the cold weather in spring. There is no remedy but to afford protection to the trees in cold periods. The leaves will be all right after the weather shall have become more settled, and we should advise you to pick off the worst leaves now, for they invariably fall a prey to mildew, for which (and especially as there are traces of mildew on the Peach leaves already), dust with flowers of sulphur, and wash the trees with a solution of soft soap, 2 ozs. to the gallon of water, applying it through a syringe or garden engine in the evening.

Grass under Chestnut Tree (*A. B.*).—Chestnut trees have such dense foliage, and cause so much shade and drip, besides rendering the ground dry, that it is very difficult to get anything to grow under them. This is about the worst time you could have chosen for operations. Grass seeds in such a spot are best sown when the trees are leafless; but you may now succeed by choosing a moist time, first scattering some fine soil on the bare spot, then raking well with an iron rake, and sowing thickly Agrostis vulgaris, Dactylis glomerata, Festuca duriuscula, Poa nemoralis, and its variety sempervirens. It would, perhaps, be well, if your tree is in or near dressed ground, to omit Dactylis glomerata, which is a coarse-growing and tufted Grass, nevertheless succeeding under trees. You will need but a small quantity of each.

Lily of the Valley not Succeeding (*M. W.*).—Probably the plants have been so long in the same spot as to have grown into a close mass, and are consequently poor, drawn, and weak. Perhaps the shade is too great, and if it be that of trees the drip from them may be hurtful; the tree roots may also render the soil very poor, as well as dry in summer, when the Lily of the Valley needs moisture. We should water the plants freely this summer, and once a-week during their period of growth, with 1 oz. of guano to a gallon of water. This will invigorate them, but will not compensate for any injury resulting from overcrowding. If they are very close together we should in November take out the roots for a foot clear of the rows, which we should leave 6 inches wide, in the one-foot space apply a good dressing of leaf soil and rotten manure, and cover the crown about an inch deep with the same material. Those removed we would plant in an east or even north border, or any place shaded from the midday sun. Let the soil be rich, light, and well manured with leaf soil and decayed dung. Plant in patches about 6 inches across, at 1 foot apart, and give a light mulching of partially decayed leaves. Water well in dry weather. After a year or two's growth you ought to have fine clumps that will flowar beautifully.

Urine as Manure (*Q. Q.*).—We advise you not to use human urine to your potted plants. It will be liable to be offensive. To kitchen-garden crops, if used for watering them, one gallon to seven of water. There is no sulphate of ammonia in urine, but other salts of ammonia are present.

Heating a Small Greenhouse (*J. S. Williams*).—A house 12 feet by 8 feet would be best heated by a gas stove, provided a tube carried the fumes into the open air. Keane's "In-door Gardening" will suit you. You can have it free by post if you enclose twenty postage stamps with your address.

Austrian Pine not Growing (*A. W.*).—We are unable to account for the tree not yet having commenced growth; probably the roots are in a diseased state, or the stem is suffering from an injury which prevents the flow of sap. We think it will die. We have known cases of young trees doing well for two or three years after planting, and then suddenly going off. On examining the roots we found them quite dead, and covered with the mycelium of a

fungus, which takes possession after some injury has been done to the thick roots in transplanting, and by degrees destroys the whole of the roots, those living as well as those decaying. Examine the roots, and if you find them healthy you have nothing to dread. The late growth may be owing to the tree standing in a wet spot, and the wet cold spring we have had.

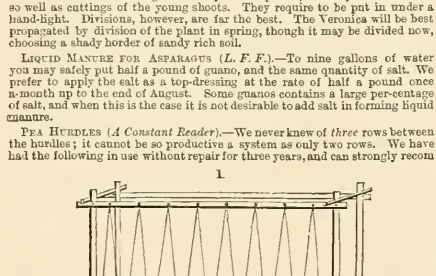
ORANGE TREES UNFRUITFUL (*Mandarin*).—The trees are probably seedlings, and require to be grafted or worked with a fruitful kind. Seedlings will, of course, fruit, but it is a long time before they do so, and it is likely they are seedlings from the fine tree which bears large leaves and fruit. We should inarch them without delay with trees of any age or size. It is a much more certain mode of working large trees than any other, and we think you will be able to practise it with complete success. Inarched now, the union will be complete by September. You may also bud them at the close of July.

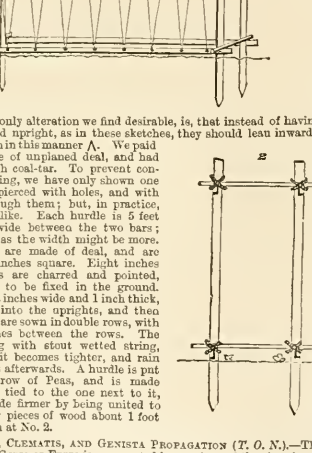
DESTROYING SLUGS (*J. G. H.*).—There is no remedy so good as quicklime. It destroys all it touches, and only needs to be frequently applied to effectually free the ground of slugs. Just before dark, or early in the morning, during moist weather, is the best time. You would see what was said in answer to another correspondent at page 401, on the same subject. Slugs are unusually prevalent this season, encouraged, no doubt, by the wet. Frequent dusting with fresh-slaked lime keeps them under.

DOUBLE LYCHNIS AND VERONICA PROPAGATION (*S. W.*).—We think the reddish and purple double flower is Lychnis Viscaria plena, and the other a Veronica, probably latifolia. The Lychnis is propagated by division of the plant in spring, though you may divide in autumn if you want the plants for spring gardening, for which they are well adapted. Cuttings of the young shoots will also grow if taken off when from 3 to 6 inches long in spring, and placed in sandy soil under a hand-glass. Slip them off at the root. Small side shoots of the flowering stems may also be put in, but they do not answer so well as cuttings of the young shoots. They require to be put in under a hand-light. Divisions, however, are far the best. The Veronica will be best propagated by division of the plant in spring, though it may be divided now, choosing a shady border of sandy rich soil.

LIQUID MANURE FOR ASPARAGUS (*L. F. F.*).—To nine gallons of water you may safely put half a pound of guano, and the same quantity of salt. We prefer to apply the salt as a top-dressing at the rate of half a pound once a-month up to the end of August. Some guanos contains a large per-centage of salt, and when this is the case it is not desirable to add salt in forming liquid manure.

PEA HURDLES (*A Constant Reader*).—We never knew of *three* rows between the hurdles; it cannot be so productive a system as only two rows. We have had the following in use without repair for three years, and can strongly recommend them. The only alteration we find desirable, is, that instead of having the supporters fixed upright, as in these sketches, they should lean inwards, and their tops touch in this manner ∧. We paid 6*d.* for each hurdle of unplaned deal, and had it painted over with coal-tar. To prevent confusion in the drawing, we have only shown one of the hurdles as pierced with holes, and with string passed through them; but, in practice, both are strung alike. Each hurdle is 5 feet long, and 3 feet wide between the two bars; for tall-growing Peas the width might be more. The upright ends are made of deal, and are 4 feet long and 2 inches square. Eight inches of the lower ends are charred and pointed, because they have to be fixed in the ground. The side bars are 2 inches wide and 1 inch thick, also of deal, sunk into the uprights, and then nailed. The Peas are sown in double rows, with a space of 9 inches between the rows. The hurdles are strung with stout wetted string, because when dry it becomes tighter, and rain does not slacken it afterwards. A hurdle is put outside of each row of Peas, and is made steadier by being tied to the one next to it, and the whole made firmer by being united to those opposite, by pieces of wood about 1 foot long, tied as shown at No. 2.





DOUBLE GORSE, CLEMATIS, AND GENISTA PROPAGATION (*T. O. N.*).—The double-blossomed Gorse or Furze is propagated by cuttings of the ripe shoots put in at the end of summer or early in autumn on an east border in very sandy soil, which may have some sandy peat added to it. They may also be put in during the spring, choosing the growths of last year. We find they do best when the cuttings are put in as early in summer as the growth has become firm. Clematises are propagated by layers in September, also by cuttings of the firm side shoots in August under a hand-light, using very sandy soil. Genista is easily propagated by seed sown in gentle heat in spring. The seedlings soon make nice plants, which should be hardened off for the greenhouse or open ground, according to kind. They may also be propagated by cuttings of the young shoots taken off after these have grown sufficiently, and have the base rather firm. Insert them in sandy soil under a hand-glass in a shaded warm spot.

VINE LEAVES DISEASED (*No. 1, W. S.*).—The small wart-like substances formed on the under side of your Vine leaves are caused by a close, moist atmosphere; they are not injurious. There is also mildew. Dissolve some soft soap in water, and add flowers of sulphur until the mixture is of the consistency of thin paint; apply this with a brush to the hot-water pipes. The water should be heated to 150°. This will destroy the mildew, also the small warts. You must fumigate the house with tobacco smoke to destroy the thrips.

TRAINING APRICOTS, PLUMS, &c. (*Somerset*).—We would not pinch back closely the young wood of your Apricot trees as you propose, but lay it in between the main branches. Probably a too-luxuriant growth was the cause of barrenness, as well as of the branch dying off this spring. Train the shoots of the Plum trees in the same way, and shorten them back to say two-thirds of their length at the winter pruning. We see no reason why your Peach tree should not bear freely next year; doubtless it will if it makes a healthy growth, and the wood is well ripened.

PELARGONIUM LEAVES SPOTTED (*Sherfield Rectory*).—The leaves sent are spotted in consequence of the plants being kept in a close and moist atmosphere. The moisture condenses and falls on the leaves, and from air not being given in time to dissipate it before the sun strikes powerfully on them, the drops of water act like so many lenses. Keep the foliage dry, give air early, with some ventilation at night. Syringing ought not to be practised.

LILIUM AURATUM FLOWER-BUDS SHRIVELLING (*Ras Hart*).—We think the buds are destroyed through being dressed with some compound which has evidently been applied for the destruction of insects. The foliage and stems are very weak, and very unlike the growth of L. auratum; the leaves are much too narrow for it, but we cannot say positively that it is not L. auratum.

PRIMULA JAPONICA SEEDS VEGETATING (*A Lady Amateur*).—"I accidentally omitted to state the length of time which the seeds take to vegetate. The plants frequently do not appear above ground until the spring after sowing. Some of the seeds will be even longer than this. See that you do not get too much heat in your warm frame, and do not give too much water, as it will cause the seeds to decay. The soil in the pots or pans should be kept only moderately moist.—J. DOUGLAS."

APPLE SHOOTS MILDEWED (*J. Green*).—The shoots are severely affected. Dusting them with flowers of sulphur is a certain remedy. We have prevented the appearance of mildew on fruit trees by lifting them and renewing the soil. We advise you to lift a portion of your trees, treach the ground, and replant, adding fresh soil about the roots. Dryness at the roots is a frequent cause of mildew.

STOCK OF A CHERRY (*Major Hinchliffe*).—The stock on which the Cherry is grafted is Prunus Mahaleb.

SELF-ACTING FOUNTAIN (*W. F. H. B.*).—You had better write to Mr. J. Pringle, Wragby, Lincolnshire.

PEACH LEAVES BLISTERED.—GREEN FLY (*J. J. Thurles*).—Gardeners call the disease "blistered leaves." It occurs in greatest virulence where the borders are imperfectly drained; but the immediate cause is exposure to the night frosts of early spring. Draining and protection are the remedies. You will find the aphides or green fly most numerous on the points of the young shoots. Cut the affected parts off, and if your collection is not very extensive dust all the under sides of the remaining leaves with dry Scotch snuff or tobacco powder, choosing a dry day to do it in. In four or six hours after, give the trees a thorough washing with a powerful garden engine, using rain water in which have been dissolved 2 ozs. of soft soap to the gallon. Six hours afterwards give them a similar washing with clear rain water.

SCOLLOP BUDDING (*J. Atkinson*).—Inform us of the name of the old gardening book in which this is mentioned.

ERECTING A SMALL GREENHOUSE (*Mrs. St. C. J.*).—It is impossible for us to advise properly without knowing more particulars, as to how you are to support the floor of the greenhouse, 20 by 8 feet, which is to be 13 feet from the ground, and in which the plants are to be planted out, and not grown in pots. There may be a support to the building already, for anything we know. Cross sills and three arches, the soil put in, and the floor tiled, would be about the best mode. For a place 8 feet in width, we have little faith in plants growing in the ground except climbers, and these, whatever may be the intended height of the house, would look well. They might be grown very well in tubs, with moveable drawers beneath them to receive the waste water. In such a case the floor might be deal, covered with oilcloth. A floor of wood, bedded securely with iron, we have seen covered with concrete and cement, ornamental tiles fixed in the cement, and a slight inclination given to one side or end for the moisture to pass out of the house. We can give no idea of fernery under such circumstances; the place would require to be seen.

CONSERVATORY PLANTS (*A Subscriber*).—For stocking such a conservatory 85 feet long, for successional blooming, you could not do better than have Camellias, Epacrises, Cinerarias, and Primulas, with two or three Cytisuses for winter and spring; Pelargoniums—zonal, florist, and fancy, with Fuchsias for summer, and Coleus, &c., brought from the Cucumber house. Cucumbers are all the better of a mild bottom heat, say from 70° to 80°, never above the latter. To grow them well in pots without bottom heat, the house should be rarely under 65° at night, and hardly ever above 70°. If these temperatures can be maintained with just a little air left on at night all the better. Then, if that cannot be done, give air early in the morning, if only from one-eighth to one-fourth of an inch, increasing it a little if the sun comes out hot; but early air-giving is the safety-valve. Supposing the house to be 68° at seven in the morning, and the sun rose it to 72°, we would give a little air; but if the sun came out and in we would give little more air if the temperature gradually rose and sunk between 75° and 85°. With a little air we have often had Cucumbers in a heat of 90° at midday, that were not much above 60° at night. Such a change in a confined air would be ruinous. When growing Cucumbers in pots without bottom heat, we found it useful to have circular rims of zinc to go inside of the rims of the pots, these zinc or tin rims being from 2 to 3 inches deep; this permits of several rich surface-dressings. Instead of these we often used turf rims, and if the atmosphere was kept moderately moist, the roots would be soon coming through the turf. If for other plants the atmosphere is rather more dry than Cucumbers delight in, we have found a large pan for the pot to stand in an advantage, placing three bits of wood in the pan, so that the bottom of the pot should be 1½ inch above the bottom of the pan, and the lower part of the pan supplied with water.

INSECTS (*J. C. H.*).—The insects (male and female), found in great numbers on the Potatoes and Carrots are harmless. They have been brought out of the ground (where they passed their early states in rotten vegetable matter), by the warm weather. They are the Bibio hortulana. The bee is the horned male of Osmia bicornis, a mason bee, and not the hive bee.—L. O. W.

NAMES OF PLANTS (*H. D., Hawkhurst*).—The thorny, purple-flowered, deciduous shrub used sometimes for hedging in France, and there called Lisère d'Afrique, is the Lycium europeum. In Spain the tender shoots are

eaten as a salad with oil and vinegar. In Tuscany they call it "The Thorn of the Crucifixion Crown," supposing it to be that of which our Saviour's crown of Thorns was formed. (*W. Nock*).—Your specimens were thrown aside, no letter being with them. (*F. Hepburn*).—Vicia tetrasperma. (*M. G.*). —Geranium dissectum and pyrenaicum. (*H. L. H.*).—Lithospermum officinale. (*Camjec*).—Asplenium flaccidum.

POULTRY, BEE, AND PIGEON CHRONICLE.

FOWLS FOR PROFIT, AND AS A MEANS OF SUBSISTENCE.—No. 6.

The following is by way of a postscript to the papers which appeared on April 4th, and in previous numbers.

There are eleven distinct varieties of poultry; five are sitters and six non-sitters. The sitters are the Brahma, Cochin, Dorking, Game, and Malay; the non-sitters are the Spanish, Hamburgh, Poland, Houdan, Crêve-Cœur, and La Flèche. Of each of these distinct varieties there are sub-varieties, but I shall confine my attention to the eleven principal varieties, nor shall I mention the Bantam, as my object is to bring under notice only those breeds which will best repay the purchaser.

Sitting Breeds.

Brahmas.—First comes the Brahma, the favourite of the fancier, the amateur, and of those who keep poultry as a pecuniary aid only. The character of this bird is gentle and peaceable; it is by nature hardier than any other breed. It will thrive in confinement, but also delights in a run, and where this advantage can be afforded it will almost keep itself without assistance, as it is so persevering in its search for food. This fowl is an excellent sitter and careful mother, and will not hesitate to sit two or three times in succession. The hen is untiring in her devotion to her offspring, and under favourable circumstances I have known her commence laying again when the chicks were only four weeks old; she is a most prolific layer at all seasons of the year.

Mature birds should weigh, the cock from 10 to 12 lbs., and the hen from 7 to 9 lbs. Brahmas early attain size, and will weigh from 4 to 5 lbs. when four months old; their flesh is much prized, and I am practically convinced that a Brahma fowl will command a higher market price than any other.

Cochin.—This bird has been rather thrown into the shade since the advent of the Brahma, but it is, nevertheless, a most valuable breed. It is docile and contented, and I must own rather lazy; it is very hardy, but the chickens are often backward in feathering. Of all birds the Cochin will thrive best in confinement; it is a good sitter and mother, and an excellent layer even in midwinter. The eggs are rather small, but rich in quality. Mature birds will weigh—the cock from 10 to 12 lbs., and the hen from 7 to 9 lbs. The frame of the Cochin is more bony than that of the Brahma, and although, if killed when about seven months old, it will be found to be of excellent flavour, and in size almost as large as a Turkey, yet there is a smaller amount of flesh upon the frame than upon the Brahma.

Dorking.—This bird is of a quiet nature when not interfered with, but otherwise it will strive for mastery. It is a voracious eater. The chicks are extremely delicate until they attain the age of two months, indeed the Dorking cannot be considered a hardy bird even when full grown. It is fond of an extensive run, and will wander to a great distance; it is almost impossible to keep it in health without this advantage. A dry gravelly soil suits it best. It is an excellent sitter and mother, and is a good layer of large white-shelled eggs, but only in warm weather. It is a most valuable fowl for market purposes, has a good breast, and the flesh has great delicacy of flavour; it is well named the epicure's favourite. Mature birds will weigh—the cock from 10 to 12 lbs., the hen from 8 to 10 lbs.

Game.—This is a most beautiful and graceful-looking bird. Its pugnacious qualities and unflinching courage are well known. It is impossible to keep many cocks in the same yard, as they will fight to the death, the victor often being in such a torn and mangled condition as to render it necessary to kill him also. This is a serious loss to the breeder of Game fowls; and the chicks are as quarrelsome as their parents. The hens sit well, and there are no better protectors of their young; they lay well in the spring and summer, and the eggs are small but rich in quality. They must have liberty. In weight mature birds average about 12 lbs. per pair. The flesh is scarcely to be surpassed in flavour, even by that of the Dorking; it is beautifully white, and will always command a ready sale.

Malay.—This is a large and plain-looking fowl; it has a cruel expression of countenance, and is not at all a favourite. True to its appearance it is an inveterate fighter, and has a fierce disposition. It is a hardy bird when full grown, but the chicks are delicate and long in feathering. It is a poor egg-producer, and lays only in the spring and summer; but the hen is a good and careful mother. It must have liberty, and will not thrive in confinement. The mature cock should weigh 10 lbs., the hen 8 lbs. It is not considered a good table bird in consequence of its yellow legs and heavy frame, but the flesh is juicy and well-flavoured. It does not fatten readily.

Non-sitters.

Hamburghs.—All the varieties of this breed are most prolific layers, "the everlasting layers" is their true cognomen. They are small fowls, and are profitable to keep. It is an active bird and peaceably disposed, but possesses great spirit; it is hardy when full grown. The chicks do well if hatched about April. It must have a long run, and will not thrive in confinement. It produces more eggs than any known breed, but only of medium size; the Black variety lays the largest eggs. In mature birds the cock weighs about 4 lbs., and the hen about 3 lbs. It is a plump fowl, and the flesh is superior in flavour, but is too small to be very profitable as an article of food.

Spanish.—This is a most aristocratic-looking bird. The white-faced variety has a very elegant appearance. It is not a hardy fowl. The chicks are longer in feathering than any other breed. It is a proud shy bird, and though quietly disposed will not allow a rival in the yard without a struggle. Like the Hamburgh it delights in a long run and a dry soil, but I have known some of the varieties to thrive well with constant attention in a very small space in the centre of a town. It is an excellent layer of the largest eggs known, pure white in colour, but only in warm weather. The cock is subject to a disease in the comb, and requires warmth and care in the winter. The cock when mature weighs 8 lbs., the hen 6 lbs. The Spanish fowl is little used for the table, the legs being black and long. It does not put on flesh rapidly.

Poland.—This breed is larger than the Hamburgh, but is not such a general favourite. It is a lively brisk bird, is a small eater, and prefers to forage for itself. It is hardy when full grown, and on a dry soil. The chickens are delicate, and should never be reared until spring weather has fairly commenced. It must have a good run, and cannot be kept long in health if confined. It is a good layer of medium-sized eggs, but not in winter. The weight of the mature cock is about 6 lbs., that of the hen about 5 lbs. It is a plump little fowl with a nice breast, but small, and this, with the dark colour of its legs, prevents it being of value as a table bird.

Houdan.—This is a useful variety, and of late years has been very generally appreciated. It is a hardy fowl, and will thrive in confinement; it is also a good layer of white-shelled eggs.

Crêve-Cœur.—The great disadvantage of breeding this variety is its delicacy of constitution, in this our variable and humid climate; it is positively essential that it should be reared in a warm situation, and on a dry soil. It is a good layer of large eggs, and the pullets put on flesh rapidly. It will not thrive in confinement. The legs being black, it is not in repute as a table fowl.

La Flèche.—This variety is now also being more generally bred than formerly. It has more size than the Crêve-Cœur and Houdan, and is a hardy, precocious, and easily-reared bird. It is a good layer, and the eggs are tolerably large. It is, like the last two, a French breed.—Vincent Skinner.

BEDLINGTON POULTRY SHOW.

I wrote my report at half-past three o'clock on the Monday of the Show, long after the judging was over. Pen 275 at that hour contained a handsome White Owl with a blue tail, decidedly the best bird in its class. If this bird was not in its pen when that class was judged the fault is not mine, and does not in the least interfere with the accuracy of my report. In the Barb class Mr. Orange's bird had a red card, upon which was printed "first-prize," tied on its pen, No. 301; and in substantiation of this fact I refer Mr. Hewitt to the list of awards which was published in the *Newcastle Daily Chronicle*. This paper had a reporter on the ground, and if the card was put on the wrong pen by mistake I had nothing to do with that. The two pens in the Variety Class, Nos. 325 and 326, containing White Dragoons and Yellow Dragoons, Mr. Hewitt says were empty when the awards were made, but the birds were afterwards penned. All I can say is the birds were in the pens when my report was taken, and there were no cards placed upon those pens to the effect that they were too late for competition.—Bedlington Terrier.

In reply to Mr. Hewitt's letter in this Journal of the 30th ult., page 450, in which he states that the two pens in the Variety Class, Nos 325 and 326, containing White Dragoons and Yellow Dragoons, were empty at the time the awards were made, but were afterwards penned—now as those two pens belong to me, as soon as I read Mr. Hewitt's letter I wrote to Mr. Robert Swann, jun., the Secretary of the Show, asking him if such statement was correct. I enclose you his reply, and shall feel obliged if you will publish it. I have seen him personally since, and he gives me full permission to ask you to do so. He says Mr. Hewitt is under some wrong impression, and positively asserts that those birds were penned previous to the Judges giving their awards. All my birds were sent in one basket, in charge of my

nephew, and by Mr. Swann's instructions were carefully penned on their arrival at ten o'clock in the morning.—JOHN G. DUNN, *55, Westmoreland Road, Newcastle-upon-Tyne.*

LIABILITY OF COMMITTEES AND RAILWAY COMPANIES FOR FANCY BIRDS.

FEARON *v.* CHORLEY.—At the Kendal County Court, on May 24th, his Honour, Mr. T. H. Ingham, gave his decision. It was an action to recover £10, the value of two Cochin-China fowls, the property of a gentleman at Whitehaven, which had been lost at the last Kendal Poultry Show. The real defendants were the Committee of the Kendal Dog and Poultry Show. The hearing had been adjourned in order to enable the parties to come to terms. Mr. Taylor said there was no evidence which would render them liable, because they were bailees without reward. It was for the plaintiff to prove that there had been culpable negligence. His Honour thought there had been negligence, because the plaintiff had not got his own poultry. Mr. Tilly said Mr. Fearon would have been very glad to have settled the matter, and offered to take £5; but the Committee had offered only two guineas. Mr. Taylor said they offered two guineas and the fowls. Mr. Tilley said the fowls were worth nothing. Mr. Taylor cited a case in which bankers were held not to be liable for valuable securities which had been deposited in their keeping, even although the property had been stolen by their own servants. His Honour was still of opinion that the Committee were liable. Mr. Taylor pointed ont that plaintiff did not discover he had the wrong birds until he received Mr. Chorley's letters, and that was several days after they were returned. His Honour said Mr. Fearon might not write the moment he discovered the mistake. It was quite clear that the Committee were liable, and he would give a verdict for £3, and costs in proportion; the fowls now in the Committee's possession to be handed over to Mr. Fearon.—(*Whitehaven News.*)

SOUTH *v.* LANCASHIRE RAILWAY COMPANY.—This case was decided in the Court of Common Pleas. Mr. South sent some Pigeons for exhibition at the Middleton Show, where they gained prizes. They were returned by the Lancashire Railway, but were sent to a station different from that directed on the label. They remained there from the Friday night until Monday, when the clerk wrote to Mr. South that they were at the station. Five of the Pigeons died, in consequence, as Mr. South alleged, of the delay and deprivation of food, and he claimed £50 damages.

The defendants maintained that the birds had been supplied with food and water, and that abstinence from food was not prejudicial to Pigeons, for when flown in matches they were fasted for two days, as this made them hasten home more quickly.

Mr. Justice Quain told the jury that the defendants were liable for the loss, if the jury considered the evidence proved that the birds died owing to the delay in delivering them as directed.

The jury gave their verdict in favour of the plaintiff, with £20 damages.

A PRIZE Dorking cockerel was let for six guineas during the breeding season, after which the bird was to be returned. The cockerel won the fourth prize at Birmingham, and the cup at Dorking (in a pen with two pullets). He was sent by rail, and a dog was placed in the luggage van, which, during the absence of the guard, broke into the basket and killed the cockerel. The railway company admit their liability, but say they are not answerable for what they term "consequential" damages. They say they shall only pay the market value of the fowl, which on inquiry at Leadenhall Market they say they are informed is £2, or at the most £3. I said that £6 6s. would certainly be payable for the use of the bird, and that I had no doubt I could have sold it afterwards for £3 or £4 if I had wished to do so. I should be glad to have your advice and opinion on the subject.—W. F.

[We think the plea of the railway directors is inadmissible. A Dorking cockerel such as yours was worth at the least £3, without any consideration of his engagement; and after making allowances for other risks before he was returned to you, we think the directors would do no more than equity if they paid you £3 additional—that is, £6 in all. A dealer would have given as much, and in the County Court we think you would recover it.—EDS.]

BATH AND WEST OF ENGLAND POULTRY SHOW AT DORCHESTER.

ONE of the best shows of poultry ever yet held by this Society took place this week at Dorchester. The arrangements were, as they always have been, as nearly perfect as can be met with, although a somewhat larger entry than was at first expected compelled additional accommodation for the birds shown. A most excellent tent, however, 300 feet long by about 40 wide, provided, with the exception of a few of the Pigeons, for the whole of the collection to be exhibited in a single tier of pens. Nothing could possibly exceed the regularity of the general appointments, and the most anxious exhibitor could not have devised any improvement as to the close attention paid to all the necessities of the birds during the show time. In fact, every exhibitor is not only deeply indebted to the General Council for the management of this capital Show, but also to the Stewards of that particular department, for the unremitting energy displayed by themselves personally in carrying out any suggestion that might tend to induce confidence among the many competitors who have entered.

A glorious treat awaited those persons who have a taste for *Spanish* fowls. An unusually good entry made by Mr. Edward Jones, of Clifton, proving, pen after pen, the most remarkably well-conditioned birds throughout that could be seen, even by those who may generally visit exhibitions of this description. This gentleman, it will be found, took first and second with cocks, and also the Spanish silver cup, and third prize with hens. In *Dorkings* were shown many excellent pens, but we confess we did not altogether like the first-prize single Dorking cock, which, though a wonderfully well-made bird in frame, had a large rosy comb that was somewhat approaching coarseness. The hens of the Grey Dorkings belonging to Mr. Lionel Patten were the winners of the Dorking cup, as the cocks where regularly used as stock birds are now mostly losing that high condition so essential in close competition. Some good Cuckoo Dorkings were shown, and some excellent White ones. In Silver-Greys, spurs set outside the legs were, of course, quite a fatal bar to prize-taking. A large entry of *Cochins* took place, Mrs. Allsopp, of Hindlip Hall, Worcester, securing the silver cup for Cochins with an excellent Buff cock in first-rate condition, and of unexceptionably good colour; Mr. Taylor, of Ulverston, standing second with a really fine bird, but defective in its eyesight. Mrs. Allsopp also showed good Partridge-feathered Cochins, and Messrs. Whitehead & Beachy some good White ones. The silver cup for *Brahmas* was secured by Mr. Ansdell's well-known Dark cock, pressed somewhat closely by an immense bird, said to be 13¼ lbs. weight, shown by Mr. Yardley, of Birmingham. In Light Brahmas some wonderfully good hens shown by Mr. Pares, of Guildford, stood quite a-head of all competition. *Game* fowls, though excellent, were for the most part not in first-rate hard feather. The birds shown by Messrs. Matthew, Fletcher, Julian, and Brown were, however, in most creditable order, the first-named gentleman taking the Game cup with a Duckwing cock that was one of the most striking fowls to visitors in the whole show tent, the metallic splendour of his plumage being such as to arrest the attention of even the most casual visitor. *Game Bantams* did not muster of so good quality as might have been anticipated. Every variety of *Hamburghs* was shown of the highest character; a grand and wonderfully well-spangled cock shown by his Grace the Duke of Sutherland taking the silver cup, Mr. Henry Beldon running very closely in nearly all the Hamburgh classes, and in some excelling. Many years will probably pass before so close a competition in these breeds will take place again—it was, in fact, a treat for the Hamburgh fanciers of this district to closely examine so perfect specimens. In *Polish* fowls the entry was so few, though of generally high-class birds, that it naturally suggests a limitation of the number of classes for this description of poultry in future exhibitions. The Gold and the Silver-spangled left little room for exception, but the Blacks with White Crests were a poor apology for those shown so meritoriously some eighteen or twenty years back. All the descriptions of *French fowls* were richly deserving of all praise, but were mostly getting into deep moult. In the Variety cock class the three prizes went respectively to Malays, Black Hamburghs, and Sultans shown from the best yards in the kingdom. In hens, the best pen of White Spanish shown for some years headed the prize list, Sultans and Black Hamburghs taking the other prizes in the order named. *Turkeys, Geese,* and *Ducks* were all good classes; and we cannot forget to draw attention to the exhibition of both Black and White Bantams of very superior quality, and in exquisite feather.

The *Pigeon* classes were, perhaps, scarcely as heavily filled as might have been reasonably expected from the prizes given, but the whole of the classes were uniformly good, the Black Barbs, Black Trumpeters, Silver Dragoons, and Silver Owls more especially so. The Carriers were of high value, particularly the Duns, a really first-rate Black one being disqualified for gross trimming of white feathers from the thighs.

The weather being favourable to out-of-door amusements, the visitors mustered strongly, and no doubt this week's Show will bear a favourable comparison with any that may have preceded it, whether viewed simply as to the poultry and Pigeons shown, or the attendance of those persons most interested in poultry pursuits.

SPANISH.—*Cock.*—1 and 2, E. Jones, Clifton. 3, Miss E. Browne, Chardleigh Green. *hc,* Mrs. Allsopp, Worcester. *Hens.*—1, Cup, and 3, E. Jones. 2, Miss E. Browne. *hc,* T. Boulter; Mrs. Allsopp; P. H. Jones, Fulham.

DORKINGS (Coloured).—*Cock.*—1, J. Chisman, Rownhams, Southampton. 2, J Martin, Claines. 3, Rev. J. G. A. Baker, Old Warden, Beds. *hc,* Viscount

Turnour, Shilliogiee Park ; L. Patton, Hillmore, Taunton. *Hens.*—1 and Cup L. Patton. 2, J. Martin. 3, J. C. Cooper, Limerick.

Dorkings (White or Black).—*Cock*.—1, O. E. Cresswell, Bagshot. 2, Rev. F. Tearle, Newmarket. *Hens.*—1, O. E. Cresswell. 2, Mrs. M. A. Hayne, Fordington.

Cochins (Cinnamon and Buff).—*Cock*.—1 and Cup, Mrs. Allsopp. 2, J. W. Taylor, Ulverstone. *hc*, J. Bloodworth, Cheltenham ; H. Yardley, Birmingham ; D. W. J. Thomas, Brecon ; Capt F. G. Coleridge, Wargrave ; A. Bamford, Middleton. *Hens.*—1, A. Bamford. 2, Miss J. Milward, Newton St. Loe. *hc*, Capt. F. G. Coleridge ; H. Lloyd, jun., Handsworth.

Cochins (Brown and Partridge-feathered).—*Cock*.—1, Mrs. Allsopp. 2, H. Lloyd, jun. *c*, J. H. Nicholls, Lostwithiel. *Hens.*—1, H. Lingwood, Creeting, Needham Market. 2, J. N. C. Pope, Bristol. *c*, H. Lloyd, jun.

Cochins (White).—*Cock*.—1, Whitehead & Beachey, Fluder, Kingskerswell. 2, J. H. Nicholls. *hc*, A. J. E. Swindell, Stourbridge. *c*, J. Bloodworth ; Whitehead & Beachey. *Hens.*—1, F. Brewer, Lostwithiel. 2, J. R. Fowler, Aylesbury.

Brahmas (Dark).—*Cock*.—1 and Cup, T. F. Ansdell, Cowley Mount, St. Helen's. 2, H. Yardley. *c*, B. F. Parrott, Henbury, Bristol. *Hens.*—1, H. Lingwood. 2, J. Watts, Birmingham. *hc*, T. F. Ansdell.

Brahmas (Light).—*Cock*.—1, Rev. N. J. Ridley, Newbury. 2 and *hc*, H. M. Maynard, Holmewood. *Hens.*—1, J. Parcs, Postford, Guildford. 2, H. M. Maynard. *c*, Rev. N. J. Ridley.

Game (Black-breasted and other Reds).—*Cock*.—1, W. H. Stanz, Netheravon. 2, S. Matthew, Stowmarket. *hc*, J. Forsyth, Wolverhampton ; Duke of Sutherland, Trentham Hall ; J. Fletcher, Stonecliough. *Hen.*—1, S. Matthew. 2, J. Fletcher.

Game (Brown-breasted Reds).—*Cock*.—1, J. Jeken, Eltham. 2, J. T. Browne, St. Austell. *hc*, S. Matthew ; H. M. Julian, Hull. *Hen.*—1, S. Matthew. 2, J. Fletcher. *hc*, H. M. Julian.

Game (Any other variety).—*Cock*.—1 and Cup, S. Matthew (Duckwings). 2, H. M. Julian (Duckwings). *hc*, J. T. Browne. *c*, W. Burgess, Winterbourne Zelston, Blandford. *Hen.*—1, S. Matthew. 2, No competition.

Hamburghs (Golden-spangled).—*Cock*.—1 and Cup, Duke of Sutherland. 2, Mrs. J. Pattison, Dorchester. *c*, Mrs. Senior, Aylesbury. *Hens.*—1, Mrs. J. Pattison. 2, R. Wilkinson, Guildford. *hc*, Duke of Sutherland ; Mrs. J. Pattison.

Hamburghs (Silver-spangled).—*Cock*.—1, H. Beldon, Bingley. 2, Mrs. J. Pattison. *hc*, Ashton & Booth, Broadbottom, Mottram ; Duke of Sutherland ; Mrs. J. Pattison (2) ; Miss E. Browne ; S. Nevick. *Hens.*—1, H. Beldon. 2, Duke of Sutherland. *c*, Mrs. J. Pattison (2) ; Miss E. Browne.

Hamburghs (Golden-pencilled).—*Cock*.—1, H. Beldon. 2, Duke of Sutherland. *Hens.*—1, Duke of Sutherland. 2, C. Bloodworth.

Hamburghs (Silver-pencilled).—*Cock*.—1, Duke of Sutherland. 2, H. Beldon. *Hens.*—1 and 2, Duke of Sutherland.

Bantams (Black or White).—1, Rev. F. Tearle (White). 2, R. H. Ashton (Black). *hc*, E. Cambridge, Cotham ; H. M. Maynard.

Bantams (Game).—1, E. C. Phillips, Venovvach, Brecon. 2, F. Fielder, Southsea. *hc*, H. Dear, North Stoneham Park, Southampton.

Bantams (Any colour or variety).—1, G. Hall, Kendal. 2, G. Clinton, Littleton, Guildford.

Polish (Golden-spangled).—*Cock*.—1, H. Beldon. 2, No competition. *Hens.*—1, H. Beldon. 2, No competition.

Polish (Silver spangled).—*Cock*.—1, H. Beldon. 2, S. Probert, Lostwithiel. *hc*, J. Hinton, Warminster. *Hens.*—1, J. Hinton. 2, H. Beldon. *hc*, S. Probert.

Polish (Black, with White Crests).—*Cock*.—1 and 2, T. P. Edwards, Lyndhurst. *Hens.*—1 and 2, T. P. Edwards.

Houdans.—*Cock*.—1, J. K Fowler. 2, F. Brewer. *hc*, J. C. Cooper. *Hens.*—1, W. Dring. 2, J. K. Fowler.

Crève-Cœurs.—*Cock*.—1, W. Dring. 2, S. Probert. *hc*, J. J. Maldeo, Biggleswade. *Hens*—1, J. J. Maldeo. 2, J. C. Cooper. *hc*, H. Beldon ; W. Dring.

Any other Variety.—*Cock*.—1, J. Hinton. 2, Duke of Sutherland. 3, J. Watts. *hc*, J. K. Fowler ; Rev. N. J. Ridley (3) ; J. C. Cooper. *Hens.*—1, R. Wilkinson (White Spanish). 2, J. Watts (Sultans). 3, Duke of Sutherland (Black Hamburghs). *c*, J. K. Fowler ; J. C. Cooper.

Ducks (White Aylesbury).—1 and 2, J. K. Fowler.

Ducks (Rouen).—1, J. N. C. Pope. 2, L. Patton. *hc*, L. H. Ricketts, Banwell ; J. C. Cooper.

Ducks (Any other variety).—1, G. S. Sainsbury, Devizes (Buenos Ayreas). 2, Mrs. M. A. Hayne (Wild Duck). *hc*, J. K. Fowler ; C. H. Mayo, Fiddleford Inn ; Mrs. C. L. Frampton, Dorchester.

Turkeys.—1, F. Lythall, Banbury. 2, L. Patton. *hc*, A. J. M. Martin, Evershot, Dorset ; Rev. N. J. Ridley.

Geese.—1, J. C. Cooper. 2, J. K. Fowler.

PIGEONS.

Carriers.—*Cock*.—1, H. Yardley. 2, H. Maynard. *hc*, W. B. Ford, Weymouth. *Hen.*—1, W. B. Ford. 2, H. Yardley.

Pouters.—*Cock*.—1, E. T. Dew, Weston-super-Mare. 2, H. Yardley. *Hen.*—1, H. Yardley.

Runts.—1, H. Yardley. 2, H. G. Holloway, jun., Strood. *c*, A. J. M. Martin.

Dragoons.—1, W. Bishop, Dorchester. 2, H. Allsop, Birmingham. *hc*, R. Loram, Exeter ; H. Yardley.

Fantails.—1, J. F. Loversidge, Newark. 2, H. Yardley. *hc*, H. M. Maynard ; L. H. Ricketts. *c*, Miss J. Milward ; H. M. Maynard ; W. S. Loder, Bath.

Trumpeters.—1, P. H. Jones. 2, L. H. Ricketts.

Barbs.—1, H. Yardley. 2, S. Dupe, Evercreech. *hc*, H. M. Maynard (2). *c*, P. H. Jones.

Archangels.—1 and 2, H. Yardley. *c*, W. Bishop, Dorchester ; O. E. Cresswell.

Tumblers.—1, E. T. Dew. 2, O. E. Cresswell. *c*, L. H. Ricketts.

Tumblers (Almond).—1, H. Yardley. 2, No competition.

Tumblers (Any other variety).—1, W. B. Ford. 2, H. Yardley.

Nuns.—1, H. Yardley. 2, Withheld.

Owls.—1, H. Yardley. 2, W. S. Loder.

Jacobins.—1, H. Yardley. 2, W. Bishop.

Any other Variety.—1, H. Yardley (Lahore). 2 and 3, W. S. Loder (Ice and Helmets).

Mr. Edward Hewitt, of Birmingham, awarded the prizes for poultry ; and Mr. Tegetmeier, of London, those for Pigeons.

THE BEE HIVE.

The guides (on the bars), are made with wax, and are gauged with old table knife ground and notched as shown in *fig.* 1. The wax is put into a saucepan nearly filled with water, and when melted over the fire it is used direct off the top of the water by dipping a small brush into it and making a thick line of it down the centre of the bars, when one stroke of the gauge leaves a clean ridge of wax, and is if anything just a little better than the patent American triangular comb guides, about which Yankee bee-keepers have spent about half a million dollars in law for infringements. By using the wax as it floats on the water, it is kept hot, and the brush can be kept clean by thrusting it through it into the water, and all heavy dirt falls to the bottom.

Fig. 2 is an excellent "dodge" for warming up a moribund hive. There are very few bee-keepers who have not been at their wits' end for the means of saving a stock of bees which from some cause have been nearly perishing of cold and neglect, the said stock perhaps possessing a queen of considerable value. It is of no use to give bees cold food in cold weather, and warm food soon becomes cold ; so to bring the two together I devised this plan of warming the whole lot. I tried it first with some slight misgivings on a stock which was rather weak, and which showed signs of dysentery brought on by rapid feeding and too little ventilation, and which bade fair to come to grief, for I daily cleared the entrance of dozens of dead and dying bees, distended, and bursting and stinking very much. The floorboard was very wet, and the hive also at the corners, and the bees seemed to have lost all pluck, as indeed, with the thermometer at 19° only, was quite reasonable. I treated them as I shall describe, and although I try the hive every evening I do not now find more than one or two dead bees occasionally.

Fig. 1.

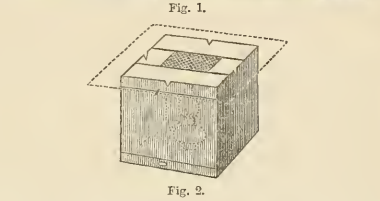


Fig. 2.

I made a box open at top and in front, about 3 inches higher than a small paraffin lamp, which will burn about twenty-four hours for three farthings, and yet generate great heat. I cut half-a-dozen small notches in the top edges of the box, and bored a couple of holes in one of the sides, at bottom, for ventilation, and then put a plate of sheet iron the size of the hive on the top, and put my lighted lamp under it, and the consequence was that, on trying it just over the lamp, I burnt my fingers, while the other parts were quite cold.

To remedy this, I fixed a square piece of tin, with wires in the centre of the top, about half an inch under the plate of iron, and that effectually dispersed the heat, so that it is now under perfect control, and the plate can be warmed to almost anything. A shutter door is put on the front to enclose the lamp and keep in the heat, and I am already so well pleased with it as a whole that I strongly recommend it to all who love their bees. A very heavy hive, containing a large and most valuable stock of Ligurians, has this day been the subject of experiment in broad daylight. They were perishing by hundreds daily of dysentery, as I discovered on Saturday last, when I found that many were dead up between the combs. I put my warming-box close to the front of the hive, and gently lifted the diseased hive on to the iron plate, raising the back so that the live bees on the wooden floorboard could crawl in, which they did. The lamp was then lighted, the hive closed, except the hole at top, which was covered with perforated zinc. The floor, which was covered with dead (?) bees, I took in-doors, and putting the bees into an old saucepan lid, I applied another lamp to see how many would revive, and in the meantime cleaned and set the floorboard to dry at a fire. In about an hour I noticed steam or vapour rising from the hole in the top of the hive, and gave more ventilation, and when it had in some measure subsided, I raised the hive on wedges about a quarter of an inch all round, and was delighted to find the bees cleansing their hive, throwing down their dead from among the combs, and carrying them out. Many hundreds of bees discharged themselves, but they all or nearly all returned to the hive, yet there was not nearly so much commotion and flying as I expected, the bees seeming to prefer their warm quarters. Having dried and warmed the floorboard, I replaced it on its stand as before, and replaced the hive on it, and it was very pleasing to see the living bees left on the iron plate crawl up into it, accompanied by many hundreds of those which had been reviving in the saucepan lid, and which were able to discharge themselves, and return to the warm plate, and thence to the hive.—C. N. Abbott, *Hanwell.*—(*English Mechanic and World of Science.*)

OUR LETTER BOX.

Books (*Centurion*).—We know of no book comprehending all the birds you name, but Brent's "Canary and the British Finches," treats of the rearing, &c., of many of them. There is also Bechstein's "Cage Birds." (*Ligurian*). —We think "Bee-keeping" by Mr. Payne contains what is needful. You can have it free by post from our office for five penny postage stamps, if you enclose them with your address.

HEN TWISTING HER NECK (*H. White*).—As she does this from side to side after feeding, it indicates a pressure on the brain. Give her a dessert-spoonful of castor oil, and never let her eat much at one time. Ivy is not injurious to fowls.

FEEDING POULTRY (*F. A. M.*).—It is with fowls as with human beings, they require more food, and of a different nature, at some times than at others. In the winter, and in cold, cheerless weather they want more stimulants, having the unkind atmosphere to contend with. We take it for granted that your fowls have a grass run. In such case they find much food, and of the best character; that may be profitably deducted from that given by hand. We must tell you that your question is a most difficult one to answer in a direct manner; we therefore tell you what you should do, and the result will be easily ascertained. If your fowls are unable to get out till they are released in the morning, they must then have a good meal provided for them, because they have been fasting from daybreak. If they can go out when they please, a much less one will satisfy them. Morning and evening are the times when there is most food in the shape of animal life among the grass. In the heat of the day, when the sun is up, there is very little. You may feed with whole maize if it be the most convenient food. At midday give barley-meal or ground oats, and in the evening give whole maize or barley. The former is the most profitable, because the small birds do not take it. We are not friendly to Indian meal, as we fancy our birds do not like it, and therefore waste it. The difficulty comes as to quantity, and here you must form your own conclusions. No mistake is so great, no conclusion so erroneous, as that which gives a certain quantity every day. You will do aright if you feed only so long as the birds run after their food. When they begin to leave it, and to wander from it one by one, give no more. Start with a certain quantity of food, note how long it lasts, and you will easily come at the cost. Fowls are overfed whenever they have food always by them, and wherever it is still thrown down though they appear careless about it.

PRESERVING EGGS (*A. B.*).—Fill a vessel with smooth lime slaked with water till it is deep enough to cover an egg placed therein, the small end downwards. When the layer is complete smooth the surface, and begin again when you have enough for another layer. Continue till the vessel is full. They should be put in very fresh.

LIGHT BRAHMAS—MARKING FOWLS (*St. Edmunds*).—Baily's book on fowls treats of exhibition birds. We believe most others do the same. The hen should have the hackle darker than the rest of the body. It is not essential, but it is preferred. You can mark your chickens easily by making a large needle red hot, and perforating the web of the wing. You can mark many different broods thus—., . ., .·., :., . . ., and so on. The marks are never obliterated. This method is desirable, because the marks are invisible. We need hardly tell you a visible mark is a disqualification at an exhibition.

CURING GAPES (*H. B. L.*).—The disease has nothing to do with your clay soil. The celebrated poultry of the London market is nearly all reared on the Sussex clays. The origin of the worms is a disputed point. They cause the gapes, and many (ourselves among the number), believe they come from stagnant and impure water. No medicine is of any avail, because the worms exist only in the trachea, and the medicine does not touch it. They are nevertheless easily curable. When the chickens are old enough give a pill of camphor the size of a garden pea. Camphor is the strongest vermifuge, and its odour pervades the windpipe while it lies in the crop. Give the chickens only water strongly impregnated with camphor to drink; this is a certain cure, and we have never known it fail. You are in error about the feather being dangerous to life. Carefully used, it hardly causes inconvenience to the patient.

FOWL'S CLAW CROOKED (*W. R., Surrey*).—That which is plainly an accident is never a disqualification; but it is a disadvantage, because where competition is very close, and it often is so, the faulty toe will turn the scale. It would not hinder us from exhibiting such a bird.

KEEPING MANDARIN AND CAROLINA DUCKS (*Idem*).—Young Mandarin Ducks may be fed on oatmeal put in a low shallow vessel, also with very small shreds of meat smaller than worms. Feed the Duck well, and she will find food for her young with these helps. They should not be pinioned till the wing is formed and the flight feathers begin to show, but long before there is any sign of quill. Take a sharp knife, put it under the spur of the wing, and cut straight through it. Put the bird in the water; this stops the bleeding, and they suffer little from it. It heals rapidly. You must be careful to cut off enough, otherwise they will fly sufficiently to get away. The spur comes at the second joint from the body, and the wing should be removed close to the joint, but this last should be uninjured.

MANDARIN DUCKS (*A Soldier*).—If you have a pair of each they will require two hutches. We have no doubt they will breed, but it is possible that if put on the water late in the season you will have to wait, as they had to become reconciled to their new quarters. There is, however, no doubt of their breeding sooner or later.

DUCKLINGS FOR MARKET (*Cowboy*).—The ducklings vary very much in weight, but some a little older than six or seven weeks old weigh from 3 to 4 lbs. They are not full-feathered; the heads show the remains of the down, and the wing feathers are merely soft stubs. We cannot tell the malady of your chickens. You should tell us on what you feed them, also their age. Confine the food to ground oats slaked with milk, curd, and bread and milk till the giddiness ceases. We take it for granted they have a grass run.

TURKEYS' EGGS SHELL-LESS (*E. C., jun.*).—We are very happy to answer your questions. The secretions of your Turkeys are at fault. Of course they have their liberty and a grass run. Feed for a time on oat, and pea, or bean-meal mixed. Give them some lettuces, the older and more seeded the better. Put down in their haunts a bushel of bricklayers' rubbish, old mortar, ceilings, &c.

SILVER DRAGOONS' BARS.—Mr. J. Bromley suggests that the Birmingham Columbarian Society should decide as to the colour of the bars.

CANKER IN PIGEONS.—"In answer to 'A SUBSCRIBER,' I wish he would try armenian bole and goose oil, dressing the mouth a few times with the mixture, and report effect in the Journal.—A WELLWISHER."

THREE-BOX COLLATERAL HIVES (*Inquirer*).—Only one entrance—namely, that in the central compartment, is to be kept open when the bees are occupying the three boxes of the collateral system. We do not know the average price of wax and honey in London during the season. Messrs. Neighbour, of Regent Street, would probably be able to inform you.

LIGURIAN DRONES (*Idem*).—The drone of the Ligurian variety is a very much handsomer individual than his brown brother, being, when pure, of a rich golden colour. The difference is very perceptible.

THIRD SWARMS (*Idem*).—The third swarm, if it comes off at all, usually does so within three days of the issue of the second swarm; so that, if it did not come off within the time mentioned, there is no probability of the hive sending one forth. Third swarms are by no means to be desired, and should always be returned.

FOOD FOR A THRUSH (*C.*).—Give it German paste, lean meat cut small, mealworms, and now and then a snail, having first broken the shell.

BATS (*T. G.*).—Why do you wish to destroy them? They live upon insects. If there are "two thousand," they are evidence that insects are in millions round about.

FODDER FOR MILCH COWS (*J. W. K.*).—Clover hay is good fodder for them if used with carrots and mangold wurtzel. By itself clover hay is too dry; and turnips, kohl rabi, &c., give an unpleasant flavour to the milk and butter.

METEOROLOGICAL OBSERVATIONS,

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude 111 feet.

DATE.	A.M.					IN THE DAY.				
1872. May. June.	Barometer at 32° and Sea Level.	Hygrometer. Dry.	Hygrometer. Wet.	Direction of Wind.	Temp. of Soil at 1 ft.	Shade Temperature. Max.	Shade Temperature. Min.	Radiation Temperature. In sun.	Radiation Temperature. On grass	Rain.
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 29	30.152	64.4	58.8	W.	58.0	72.4	51.3	117.1	48 2	0.050
Th. 30	30.051	62 7	55.8	S.W.	58.2	71.0	52.8	120 8	51.7	—
Fri. 31	30.001	57 4	55 8	W.	58 0	65.2	48.1	107.5	45.9	0.050
Sat. 1	30.140	55.5	49 5	W.	56.8	67.8	40.8	118 0	38.8	0.120
Sun. 2	29.859	50.2	50.0	S.W.	55.7	61.8	47.6	102 8	47.2	0.230
Mo. 3	29.811	60 6	55.2	N.W.	56.2	67.8	48.4	120.3	47.8	0.140
Tu. 4	29.967	55.4	50.5	W.	55.4	65.1	44.2	118.8	42.9	—
Means	29.997	58.0	53.6		56.9	67.3	47.6	115.0	46.1	0.590

REMARKS.

29th.—Fair but cloudy morning; fine afternoon; shower about 5 P.M., and a heavy one at 9 P.M.

30th.—Fine day, hot sun soon after noon.

31st.—Fine day with occasional showers.

June 1st.—Very fine day, though still cold.

2nd.—Wet morning; fine in early afternoon; heavy rain with thunder soon after 6 P.M.

3rd.—Fine morning, heavy hail shower at 0.20 P.M.; fair, but rather dull afternoon and evening.

4th.—Very fine day, but still cold for the season.

A very seasonable week, the temperature of the air almost exactly the average. The hot sun has partially warmed the earth, and its temperature has risen considerably.—G. J. SYMONS.

COVENT GARDEN MARKET.—JUNE 5.

SUPPLIES keep moderate, and prices remain without much alteration. French goods arrive in good order, and are quite a staple article just now, comprising Cherries, Strawberries, Apricots, Plums, and the usual varieties of vegetables now in season.

FRUIT.

		s. d.		s. d.			s. d.		s. d.
Apples	½ sieve	3 0	to	6 0	Melons	each	5 0	to	10 0
Apricots	doz.	2 0		3 0	Nectarines	doz.	10 0		20 0
Cherries	per box	2 0		4 0	Oranges	₩100	4 0		10 0
Chestnuts	bushel	10 0		20 0	Peaches	doz.	15 0		30 0
Currants	½ sieve	0 0		0 0	Pears, kitchen	doz.	0 0		0 0
Black	do.	0 0		0 0	dessert	doz.	0 0		0 0
Figs	doz.	8 0		12 0	Pine Apples	lb.	6 0		12 0
Filberts	lb.	0 6		1 0	Quinces	doz.	0 0		0 0
Cobs	lb.	0 6		1 0	Raspberries	lb.	0 0		0 0
Grapes, hothouse	lb.	4 0		10 0	Strawberries	₩lb.	6 0		12 0
Gooseberries	quart	0 9		1 0	Walnuts	bushel	10 0		25 0
Lemons	₩100	7 0		10 0	ditto	₩100	1 0		2 0

VEGETABLES.

		s. d.		s. d.			s. d.		s. d.
Artichokes	doz.	4 0	to	6 0	Leeks	bunch	0 2	to	0 0
Asparagus	₩100.	4 0		8 0	Lettuce	doz.	0 9		1 0
Beans, Kidney	per 100	1 6		2 6	Mushrooms	pottle	2 0		3 0
Broad	bushel	0 0		0 0	Mustard & Cress	punnet	0 2		0 0
Beet, Red	doz.	1 0		3 0	Onions	bunch	0 4		0 9
Broccoli	bundle	0 9		1 6	pickling	quart	0 6		0 6
Brussels Sprouts	½ sieve	0 0		0 0	Parsley per doz. bunches		3 0		4 0
Cabbage	doz.	1 0		1 6	Parsnips	doz.	0 9		1 0
Capsicums	₩100	0 0		0 0	Peas	quart	1 6		3 6
Carrots	bunch	0 6		0 0	Potatoes	bushel	4 0		5 6
Cauliflower	doz.	3 0		8 0	Kidney	do.	3 0		5 0
Celery	bundle	1 6		2 0	Radishes	doz. bunches	0 6		1 0
Coleworts	doz. bunches	2 0		3 0	Rhubarb	bundle	0 3		1 6
Cucumbers	each	0 6		1 0	Savoys	doz.	0 0		0 0
pickling	doz.	0 0		0 0	Sea-kale	basket	0 0		0 0
Endive	doz.	2 0		0 0	Shallots	lb.	0 4		0 0
Fennel	bunch	0 3		0 0	Spinach	bushel	3 0		4 0
Garlic	lb.	0 8		0 0	Tomatoes	doz.	3 0		6 0
Herbs	bunch	0 3		0 0	Turnips	bunch	0 3		0 9
Horseradish	bundle	3 0		4 0	Vegetable Marrows	doz.	0 0		0 0

POULTRY MARKET.—JUNE 5.

WE have a good supply of poultry and an improving trade, so that prices are maintained.

	s. d.		s. d.		s. d.		s. d.
Large Fowls	4 0	to	4 6	Hares	0 0	to	0 0
Smaller ditto	3 6		4 0	Rabbits	1 5		1 6
Chickens	2 6		3 0	Wild ditto	0 9		0 10
Goslings	6 6		7 0	Pigeons	0 10		1 0
Ducklings	3 0		4 6	Pheasants	0 0		0
Guinea Fowls	0 0		0 0	Partridges	0 0		0 0

WEEKLY CALENDAR.

Day of Month	Day of Week	JUNE 13—19, 1872.	Average Temperature near London.			Rain in 43 years.	Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock after Sun.	Day of Year.
			Day.	Night.	Mean.	Days.	m. h.	m. h.	m. h.	m. h.	Days.	m. s	
13	Th	Meeting of Royal Society, 8.30 P.M.	71.9	47.4	59.6	20	45 af 3	14 af 8	39 10	27 af 0	7	0 12	165
14	F		72.6	47.9	60.3	19	45 3	14 8	51 11	43 0	8	before	166
15	S		72.8	48.3	60.5	19	45 3	15 8	after.	58 0	9	0 14	167
16	Sun	3 Sunday after Trinity.	72.6	48.3	60.4	18	45 3	15 8	20 2	13 1	10	0 26	168
17	M		72.9	47.3	60.1	23	45 3	16 8	39 3	28 1	11	0 39	169
18	Tu	Meeting of Zoological Society, 9 P.M.	72.3	50.4	61.3	21	45 3	17 8	3 5	48 1	12	0 52	170
19	W	Royal Horticultural Society, Fruit, Floral, and General Meeting.	70.8	48.6	59.7	22	45 3	17 8	30 6	10 2	13	1 5	171

From observations taken near London during forty-three years, the average day temperature of the week is 72.3°; and its night temperature 48.3°. The greatest heat was 98°, on the 19th, 1846; and the lowest cold 30°, on the 15th, 1850. The greatest fall of rain was 1.46 inch.

PINUS LARICIO (The Corsican Pine).

ALWAYS in the laying-out of new or the renovation of old gardens it is found necessary to plant some parts to shut out unsightly objects, whilst there are few sites which enjoy perfect immunity from cold withering winds: hence the necessity of planting hardy trees from the north-west to the north-east to afford shelter in those directions. In most situations shelter from cold and high winds is as important as the foundation is to a building. It is common enough, however, to see the most exposed ground planted with the same subjects as more sheltered spots. Apparently, it is forgotten that most of the trees planted are exotic, and not so capable of enduring bleak positions as our indigenous trees, or the hardier exotic kinds. Shelter may be given in course of time by almost everything that will withstand the vicissitudes of our uncertain climate, but it is evident that that which will give us the best shelter in the least time is what we must prefer. Some subjects are of very rapid growth, and may on that account force themselves on our notice, yet trees for shelter should not only be quick-growing and useful in a young state, but after they are grown up answer every purpose of a permanent screen, and if they are ornamental as well, all the better.

Localities vary considerably in climate, and nowhere, probably, more so than in the British isles. Places within a few miles of each other are often very different as regards their suitability for trees. One may be in a valley, or on the southern slope of a hill, naturally sheltered from the north, north-east, and north-west, rendering shelter necessary from the west and east only, or from other points to which the site is exposed, the shelter-giving trees on these points being at such a distance as not to intercept the sun's rays, causing shade where light is wanted. Another place may be elevated, having no natural shelter, as that of hills or woods at a distance or near, whilst a third may be in a flat and wooded district. It is hardly necessary to say that the trees suitable for shelter in the third case are not so in the second, nor that those which answer for the exposed elevated spot will do as well for the other two.

Shelter, as sought to be given by trees, may be said to be of two kinds—viz., near and distant. The near applies immediately to garden and pleasure grounds, and the distant to the park or other parts of the domain at some way off from the grounds. The latter is, probably, the more effectual, as the planting can be carried out on a more extensive scale—the plantation can be thicker, and the force of the wind is more effectually broken than by a thinner or narrower plantation. Where there is scope, I should always seek to plant most extensively for shelter at some distance rather than close to the object to be sheltered. Plantations at the distance of from a quarter to half a mile will render immediate shelter of less importance, and for shelter to the garden and grounds we may safely plant subjects we dare not do where there is no distant shelter of woods or plantations. With these at such a distance, or with a well-wooded park or country surrounding the grounds, further shelter would not be of such importance if it were not that by having shelter close at hand we considerably mitigate the effects of cold and violent winds—secure, in fact, double shelter, and are enabled to insure for the choicest and best ornaments of our gardens a more favourable climate.

Some places are of such limited extent as not to allow of distant as well as near shelter, the latter being all that can reasonably be attempted. No place is so small but that the hardier kinds of trees can be planted on the parts most exposed—if not all round, at least on the outside or exposed side of the clump or plantation, reserving the inner side or face for the more select subjects.

In planting new places or renovating old, we have also to provide shelter of a temporary as well as permanent character, as nurses to the less hardy sorts. The permanent trees or shrubs are planted out in the first instance at such places and distances that they will, when grown up, have proper space for development; and the intervals should be filled with subjects which, whilst they shelter those in the immediate vicinity, and add to the effect for a time, are only to remain until they interfere with the growth of the trees which they were planted to shelter. When this takes place it may be desirable to leave some of the nurses on the more exposed sides of the plantation (and in small places this will be a matter of necessity), so as to form a first break from wind.

The subjects suitable for shelter are numerous, but I need not name the whole of the trees I have seen employed. I may say, however, that no tree is of any value for a bleak position if it is not very hardy, of erect growth, and able to maintain its position against any wind. I want to be informed what will serve as shelter to a spot 500 feet above the sea level, four miles distant (or about three as the rooks fly) from the sea, with nothing to break the force of the wind from Norway on the north-east and Denmark east, whilst south-eastward it is fully exposed to the sweep of the wind from the North Sea. Northwards there are some hills and a badly-wooded country, the woods being in the hollows, and a wood within half a mile, so that there is not much to complain of in that direction; but from the north-west to the south-east there is no shelter but Heath-clad hills.

The first subject that I will name is Pinus Laricio. It is of erect habit, quick-growing, of moderately spreading habit, and densely clad with branchlets. It grows as quickly as Larch in the most sheltered situations, and where, owing to the cold, the latter is dwarfed, the Corsican Pine grows as well as it does in the most favoured position. Besides, in plantations where the Spruce, Larch, Scotch Fir, and Austrian Pine are kept completely under by hares and rabbits, the Corsican Pine rears its stately form unmolested. Hares and rabbits do not eat it. In a word, it grows twice as quickly as Scotch Fir, it is as hardy as that tree, or hardier, and from all accounts the timber is excellent. As we have several millions of acres in this country said to be incapable of tillage, would it

not be well to plant them with this Pine? I am persuaded that at 4 feet apart it will withstand all winds, and not be moved an inch out of the perpendicular. For planting in exposed places the trees should be small, and not grown thickly. This applies to all plants for exposed situations. Young trees from 12 to 15 inches high are sufficiently large, but those I plant for shelter are stiff plants, from 2 to 3 feet high, grown thinly. If they have been grown thickly, and are drawn up weak, they are dear at any price.

The Corsican Pine has leaves twice the length of those of the Scotch Fir, of a deeper green, and twisted or curled, while the Austrian Pine has straight leaves, not so dense, but still sufficiently so to form a block. The plants differ very materially in habit: some are more branched and denser than others; the form is that of a pyramid with a broad base and the branches at right angles to the stem, but curving upwards as the tree increases outward. I give the height of two young trees, also of one of the Austrian Pine, and of the White Spruce, to show the rate of growth. The numbers relate to years of growth, the first being calculated from the ground to the first branches.

	Corsican Pines.		Austrian Pine.		White Spruce.	
	ft. ins.	ft. ins.	ft. ins.		ft. ins.	
1st. ..	0 3	.. 0 3	.. 0 3	..	0 7	
2nd. ..	0 6	.. 0 6	.. 0 6	..	0 4	
3rd. ..	0 9	.. 0 10	.. 0 4	..	0 5	
4th. ..	0 7	.. 0 8	.. *1 1	..	*0 8	
5th. ..	1 2	.. 1 4	.. 0 11	..	0 9	
6th. ..	2 4	.. 1 9	.. 1 5	..	1 1	
7th. ..	2 6	.. 2 0	.. 0 6	..	1 6	
8th. ..	2 11	.. 2 2	.. 0 8	..	1 6	
9th. ..	..	.. ..	.. 1 2	..	1 6	
10th. ..	..	.. ..	.. 1 5	..	1 6	
11th. ..	..	.. ..	.. 1 10	..	..	
12th. ..	..	.. ..	.. 2 2	..	..	

I have put the asterisk to indicate the years of planting. It will be seen that the annual growth is checked by the removal. The Austrian Pine was moved twice. The removals are, of course, irrespective of nursery transplantations. The Corsican Pines are 7 feet through at 3 feet from the ground, and the Austrian Pines 10 feet. The Corsican Pine is the quickest-growing Conifer I know in an exposed spot, and it grows straight as an arrow.

The Austrian Pine is also good for shelter, but it must take a secondary position in competition with the Corsican, for it is of slower growth; it is more dense in habit, but this is no gain, for the wind having a greater effect upon the trees, they have a tendency to lean to one side. It also does not escape the attacks of hares and rabbits.

As a deciduous tree for shelter there is none that I have found equal to the common Sycamore. Like the Corsican Pine it is of quick growth, forms a dense leaf growth, and even when leafless is useful as a break, as it has many stiff branches and twigs.

I may mention Pinus excelsa and Abies alba as quick-growing evergreen trees, not attacked by hares and rabbits, and which are suitable for shelter; both are fine ornamental subjects. Pinus montana, a dwarf-growing or rather spreading kind, is very hardy, and is never so much at home as on an elevated spot.—G. Abbey.

SPRING GARDENING AT LOWER ASTON, BIRMINGHAM.

If I have protested somewhat strongly against the extravagance of the bedding-out mania, I have, I think, also acknowledged that in some places there is ample scope for it. In a large demesne, where pleasure grounds of all kinds can be arranged, then assuredly it may be well to have a portion laid out in this style, and in every place a modified form of it may be sanctioned. I think no one can question that in such places as Kensington Gardens, and the London parks generally, it affords an admirable opportunity for making a display which would be impossible under any other style, for we know well what a miserable thing the herbaceous or mixed border is when it has been exposed to the fogs, blacks, dust, and dirt of a London winter. To be able, then, to keep the beds clean until brighter days, or to plant them with bulbs or other spring flowers which can be taken up, gives an advantage which has been admirably seized upon by our ædiles of late years. The same may be said of such a place as the Lower Aston grounds at Birmingham. As a caterer for the general public of the great iron metropolis, it is Mr. Quilter's object to tempt people out of doors when they would otherwise be unwilling to believe that it was worth while to stir out; and then also, of necessity, to have them gay in the summer season, when *al fresco* enjoyments are so thoroughly entered into by the inhabitants of Birmingham and the Black Country generally.

I had heard a great deal of the extent and success of Mr. Quilter's bedding-out, but I can honestly say that it entirely surpassed all my expectations, and that it was the very prettiest piece of spring gardening I had ever seen; and as it is just possible a portion of it may be left until the meeting of the Royal Horticultural Society, I have thought that it might not be uninteresting to state what I saw there on my visit to Birmingham lately.

The portion of the grounds which Mr. Quilter has devoted to the carrying-out of his plans is that which originally formed the walled-in kitchen garden of Aston Hall. It is nearly square, and every portion of it—the borders round the walks, the raised banks in the centre, and all available spaces—is used; so that it may be well imagined that things are done on a scale of no ordinary magnitude. Some idea of this may be given when I say that of Daisies alone 500,000 plants were put in. The great merit of the whole arrangement is that the effect is gained by so few and such inexpensive materials; and when I say that the plants employed are 1, Cliveden Pansies, 2, Daisies, 3, Aubrietia, 4, Golden Feather Pyrethrum, and 5, Cerastium tomentosum, I think this will be fully admitted. I omit the Forget-me-nots, for these were in back places and formed no part of the grand *coup d'œil*. The Daisies were white, red, and pink; the Pansies yellow, dark blue, and white; and by a successful combination of these colours the most charming effects were produced. Down the centre of the garden are what may be called walls of Ivy, which is growing on wire and wood fences and completely covering them. The dark rich green of the Ivy is an admirable foil to throw out the colours in the beds. Few of the beds or borders are on the level, but slightly inclined, and for such dwarf-growing plants as are employed this is a manifest advantage. The value of the Golden Pyrethrum is more evident here than in any place where I have seen it before. A great portion of the tracing of the beds was formed by it, and at this season the pale yellow gave a lighting-up to the beds which nothing else could do.

Of course there is a great variety of pattern in these beds and borders, and the ingenuity of the arrangement consists in the manner in which the few colours used are grouped together. For example, there is a long border formed of semicircles placed opposite to each other. They are formed of Alyssum; the first pair in the series being filled with white Daisies, the second pair with pink Daisies, and the space formed by the semicircles with a dark Pansy. There is another, a circular border formed in zigzag; the lines of Golden Feather, and the spaces filled-in with white, red, and pink Daisies in succession. We have again the semicircular pattern, but here formed of Golden Feather; the centre white Daisies, the compartments of red Daisies and Aubrietia alternately. Then there was a more elaborate border—a sort of ribbon wave; the lines formed of Pyrethrum; the ribbon of a row of white Daisies, then one of dark Pansies, and then one of white Daisies; the nearly circular spaces left being filled in with red Daisies at the top, and the lower spaces with Pyrethrum. Then there was a charming panelling done with panels of Aubrietia and pink Daisies alternately, bordered with white Daisy, and edged with Pyrethrum. The combinations were endless, and, as in all such cases, the best description gives but a very faint idea of the reality.

There is unquestionably here the hand of one who thoroughly understands what he is doing, and I have no doubt that the summer bedding is of that superior character I was assured it was. No one who has had the opportunity of seeing such spring gardening as this can doubt of its effect or value for such places; and my object has been, not to induce everybody who has his few yards of ground to try what he calls spring gardening, and so hold himself up to the ridicule of all men of taste, but to indicate where something really good of its kind can be seen, and to induce others to visit a garden which reflects so much credit on its spirited proprietor.—D., *Deal*.

PELARGONIUM CUTTINGS.

It may be desirable to make cuttings, as recommended by "Arachne," on the 1st of June, but from what plants are these cuttings to be made? The plants from the cuttings of the bedding Pelargoniums of the preceding year are at this time being bedded-out, and if sufficient cuttings for the next

year's supply are to be taken from the bedding-out Pelargoniums, the plants would be quite disfigured. I have always nearly two thousand cuttings taken every year in August and the beginning of September; some of the cuttings are put in single pots, others three or four in a pot. The latter are potted-off in March, and make fine plants by the third week of May, when we generally begin bedding-out.—A Lady Gardener.

THE COMING PEACH SEASON.

It needs no prophet now to forecast our fruit prospects, which may be taken as below the average, though there are some exceptions. Who could guess during the brilliant sunshine of April that a May of cold drenching rains mingled with fierce hail showers was shortly to follow? Of course, vegetation, stimulated unwontedly, received a severe shock. Such heavy downpours are most prejudicial to the setting of the pollen, washing it completely away. There are some enthusiastic enough to admire a damp atmosphere in-doors, even during the blooming period, or, at least, who advocate a gentle syringing at this time; but my own faith is very weak, and I prefer a dry sunny atmosphere and a brisk breeze for all kinds of fruit trees.

Of the advantages of motion among the petals and foliage I am the more convinced, because this season, from carelessness, our orchard-house trees did not receive their usual shaking to set the flowers, and though the crop is good, there were certainly less blooms set, and less to thin-out afterwards. The best plan is to have a stoutish pole, long enough to reach anywhere, wrap some soft material round the end, and then, once a-day, to rap gently over every yard of branch and tree during the time the pollen is ready to act. As syringing is out of the question at this time, the trees, especially if potted, should have abundance of water and a free circulation of air, shutting up rather earlier to increase the heat; thus, with ordinary weather, all goes well. When a gale of wind prevails we must open to leeward only, or, when cold rain falls, a little fire heat would be most useful. Pots should be turned round to the sun, exposing all parts in succession, and the trees be gently swayed by the hand. These may appear trivial matters, but they are not really so if we wish to have fine regular crops, and these of first-rate quality.

As regards the unfortunate Peach trees on the wall, I never saw them look worse. Hardly a Peach set; of leaves there is absolutely none, those first appearing being now, when not pulled off (which they should be), curled and damping-off. Even under protecting canvas they seem little better. The incessant heavy downpour and the coldness of the nights have penetrated through tiffanies and similar materials like so many cobwebs. Even under glass in many places the thermometer descended too low for safety. Pears and Plums are but a scanty crop, and Apples are not first-rate. The weather, however, has improved, but who can guess?

As is evident, where situation and skilful care have been combined, there are splendid exceptions, but is it not certain that our heavily-driven fruit trees, both under glass and on the open wall, are rendered so unnecessarily weak by overcropping that they have but a feeble chance? What are the trees which bear at present the most heavily but such as did not bear at all last year, or else some very vigorous young ones? Their stored-up strength has told during the time of trial, of course. The more I converse with the visitors who come here, many having houses and good gardens at home, the more I am convinced that the rate of production expected is unreasonable. I have tested their opinions freely, and our ideas do not coincide on this important point. I always thin-out largely, and always have the same average crop; but if I adopted the convictions of most I have seen, I should not expect anything this season. When a tree is given me it is quite exhausted already, though young; neither is the quality of the fruit at all what it should be. With the exception of that grown to exhibit, and where there is no unreasonable demand on the gardener, certainly the amount is more looked to than the quality. It is true we live in a fast age, and young trees are readily bought; but unless the established trees have an occasional year of rest—and where is this to be found?—at the present rate of production they must fail, and that happens not so unfrequently of late as to make the matter one to be despised, especially whenever such a spring occurs as the present one.

Occasionally, wearied with the evident disappointment of visitors, I have allowed the fruit on some ill-fated victim to remain but very little thinned, and have seen at once that such was the expected proportion. One gentleman brought his gardener with him, and triumphantly stopped before a Passe Colmar Pear tree, having about three hundred Pears on it, it having been forgotten at the thinning. Now the tree could only bear either fifty Pears, but such as I would not wish to eat, or twenty-five, which would be very good indeed. Another tree, having 170 Pears on it, was reduced to twenty; but my visitors strongly condemned this! There is no doubt whatever in my mind that after a year or two of such production the foliage would become small, the tree liable to injury from cold or insects, and the extensions dwindle, while the fruit would rapidly lose its juicy character and colour.

"I don't think you have quite so much fruit in the orchard houses as last year," many say; to which I reply, with humility, turning up the foliage, that there is all over the houses at least one fine Peach per square foot, and even more on some trees, and I do not think this a bad crop for a beginner like myself.

Those who know the least are amateurs with two or three seasons of experience. Such are very decided indeed in their ideas. But let us not be mistaken. There is a considerable amount of knowledge now prevalent, and orchard houses are common enough everywhere, and possessed by many who have a real love for fruit culture, who are sure of ultimate results by patience. To such and others I would say, If your fruit crop be not an average one this season, is it entirely because of the cold spring? and have not your trees by overcropping been so weakened that they have succumbed at once to what they might have resisted, at least partially, had their constitution been more vigorous? The matter is worth consideration.—T. C. Bréhaut.

ECCENTRICITIES OF PLANTS.

The subject of the variations in the colours of flowers is one on which I should like some of the readers of the Journal who may have devoted their attention to this peculiarity or eccentricity to enlighten me; in the meantime I shall here briefly record one or two examples which have come under my immediate notice.

In the first place, I had a small Hyacinth in a glass this season; it should have been a single blue, but instead of coming in a decorous manner, its blossoms, or the tips of each of the segments of the bells, were dark green, leaving only the base blue. About a week ago I was shown by a friend a spike of a single Hyacinth in which each flower was splashed with blue and pink; two other spikes which grew upon the same bulb were respectively wholly blue and wholly pink. What the colour should have been I could not ascertain.

In my own London garden another remarkable variation has been going on for several years with the root of a Daisy, and I shall describe it, as it may not be uninteresting to your readers. In 1868 my next-door neighbour presented me with a root in full bloom of the Double Crimson Daisy, at the same time remarking that it was a disgrace to me that I did not grow some of these plants amongst my early spring flowers. I may here remark that from that time no other Daisy has been in my garden, and now mark the metamorphoses this single plant has passed through. In the spring of 1869, instead of double crimson flowers coming upon my Daisy roots, they were all single white ones, not quite so single as those we find in the meadows, but nearly so. This Daisy is a great pet of my wife, and the peculiarity of the change which had taken place in its blooms induced us both to retain it, when, lo! in the spring of 1870 the same plant produced semi-double white flowers, having, in addition, round the base a quantity of little floral buds, forming what is popularly known as a hen-and-chickens flower. This change, as may be supposed, excited our curiosity, the plant became immensely popular, and we eagerly watched for the first flowers in the spring of 1871 to see what novelty was in store for us. We were rewarded with large and beautifully double pure white blooms, each floret being tipped with rosy-pink, reminding one of a fine Pompon Chrysanthemum. In the autumn of 1871 the plant had formed a large clump, and I divided it into many pieces, and this year I have plants with double pure white flowers—flowers that resemble those of last year, as well as single blooms, and, in a few instances, some flowers in which the florets are tipped with deep red. These are the nearest approach to the state in which I originally received it, and yet on the same plant I get occasional flowers resembling our wild

species, Bellis perennis. I am very anxious to prove if it will revert to the double crimson form.

With these changes before my eyes I find it extremely difficult to accuse my nurseryman if his plants do not all come true to name, and I should be very glad if some of my fellow-workers would record their experiences of the eccentricities of plants.—Experto Crede.

INTERMEDIATE ORCHID CULTURE AT FERNIEHURST.

Having, early in the year, offered a few remarks on the cool treatment of Orchids at Fernichurst (see page 99–101), I now furnish some on the remaining portion of the collection, which I shall term intermediate, there being no East Indian house. These, however, consist of Dendrobes, Cattleyas, Oncidiums, and others requiring a similar temperature. The cool-house Orchids doubtless constitute the most prominent feature, still the intermediate Orchids may not prove uninteresting to some of our amateur growers. The rapidity with which the cultivation of Orchids has increased, even during the past few years, is astonishing; we now not only see them in the large gardens of noblemen, but also in those of amateurs. To the latter the cool section cannot be too strongly recommended, for they can be grown at a much less expense than the others, and comprise some of the richest and loveliest of Orchids. Truly I can but assert that the more I hear about Orchids the better I like them, and the more I see of them the more ardent is my love for them; in fact, those who do not love them must be very deficient in taste and judgment.

Orchids are among the richest and rarest productions of the whole floral kingdom, and present some of the most curious and interesting works of nature, borrowing largely from the animal kingdom in the forms of their flowers. This is noticeable in many species; but here I must only take for example the well-known Butterfly-plant (Oncidium Papilio), the flowers of which resemble a butterfly; or the Dove-plant (Peristeria elata), in which the central parts of each flower have a very striking resemblance to a dove, whence it has been called El Spirito Santo. Indeed, nothing can be more interesting than to look closely into their structure and formation. As well as this, they present every imaginable shade of colour, from the most brilliant to the dullest; and what greatly enhances the value of many of the species is their lasting qualities, remaining in some cases for two months or more in perfection. Others, however, are so fugacious as to last only as many days, or even less; others possses the most delicious fragrance.

In my opinion success in Orchid culture depends chiefly on attention to a few points; certainly judgment must also be exercised in the management of a mixed collection.

I will first commence with potting, which, as a rule, should be done just as the plant begins to grow. Be careful not to overpot, and see that the pots are perfectly clean. These, with other materials, and the compost, which generally consists of peat, moss, and broken potsherds, with an admixture of river or silver sand, should be kept in some convenient place, that they may acquire the same temperature as the house in which the plants are growing. Secure good drainage, for although the majority of Orchids delight in a plentiful supply of water, they are impatient of anything stagnant or sour. After placing some of the compost over the crocks, the pot is ready to receive the plant, which must have the old compost carefully removed from its roots; at the same time take away any decayed roots. Next place the roots on the new compost, taking care to have it slightly elevated above the rim according to the size of the pot, except in the case of the terrestrial species, and then make perfectly firm, for if that is not attended to success cannot follow. On various occasions I have seen them nearly falling out of the pots, in all cases presenting a most miserable and neglected appearance.

With regard to watering it must be done with considerable judgment, as some Orchids, particularly those from high elevations, delight in an abundance of water, while others will not endure so much. At all times see that no water lodges in the young growths, and avoid constant dribblings, as these often cause damping-off. Moisture in the house may be kept up by damping the pathways and benches, regulating it according to the brightness of the weather; and during the hot months of summer, with care, the syringe may be used freely overhead in the morning and evening, which will assist in keeping down red spider and other insect pests.

Air should also be admitted as freely as the external temperature will allow; much superfluous moisture which may otherwise prove somewhat injurious will thus escape. As much light as possible should also be admitted, but at all times prevent the direct rays of the sun striking on the plants. This must be done by means of blinds, but upon no account allow them to remain on except during the brightest sunshine, for it is as injurious to exclude light as it is to admit the direct rays of the sun. There are, perhaps, a few species which will endure a little more exposure; these, if possible, should have a house to themselves; if not, their requirements must be attended to as nearly as other means will allow.

To return to the principal object of this paper, from which I have in some degree wandered. At Fernichurst, where the plants for the most part present a very luxuriant and healthy appearance, in the first place the houses devoted to their culture are all-span-roofed, and 18 feet wide. The longest two are about 40 feet long, and about 12 feet high in the centre; the width is divided into three stages, or rather flat benches, that in the centre being 6 feet, and the side ones 3 feet each, thus leaving 3 feet all round for the pathway, which enables the cultivator or visitor to view the plants with advantage from all sides. I might add that the benches are covered with small nodules of Cannell coal, which give the whole a neat appearance, as well as a steady amount of moisture, which the plants seem to enjoy.

Among the principal genera grown are Cattleya and Lælia, many species and varieties of each. The most notable Cattleyas are C. Acklandiæ, bulbosa, citrina, exoniensis, labiata, marginata, and Mossiæ (which last should be grown by the dozen, for its splendour is only fully realised when the plants are seen in a mass), C. Skinneri, speciosissima, and Trianæ, one of the best of winter-blooming Cattleyas, generally lasting in perfection about fourteen days; one particular bloom, however, was quite fit for the flower-stand at the end of six weeks. Many kinds of Lælias are also grown, the glorious L. purpurata being most prominent; there are about two dozen plants of it, a plant of L. elegans Turneri with upwards of twenty pseudo-bulbs, and as many others of equal merit. Chysis bractescens and Limminghii are two very desirable species; of the latter a fine plant exists in the small collection of Dr. Popplelon, of Newley, near Leeds. At the time I saw it last summer it had upwards of twenty of its Cucumber-like bulbs. It was growing in a large pot with its roots clinging to the outside as if it had not been disturbed for years, which very probably was the case; having so many roots it required to be supplied with water twice during the day.

Of the lovely Cœlogyne cristata there are seven or eight large pans, and most noticeable among the genus Cypripedium is that splendid species C. (Selenipedium) caudatum, with its variety roseum, of which eight plants now in flower have produced fifteen spikes, with twenty-eight individual flowers, one spike bearing three. What renders this Cypripedium so curious and interesting is its tail-like sepals, often attaining the length of 30 inches, or even more. Those on the plant referred to are nearly of that length, and still growing; the rapidity with which these lengthen after being released from the sheath is very remarkable. Of its pretty little companion Uropedium Lindeni, there are two spikes which are similar to the above, except that it is furnished with three tails or strings and has not the slipper. Other Cypripediums are also to be seen, and among them is a pan of C. villosum, which has borne nineteen of its rich flowers. Too much cannot be said in praise of this lovely species, its lasting qualities greatly enhancing its value for the decoration of the plant house, or the flower-vase in the drawing-room.

Dendrobiums are, perhaps, more largely grown than any of the other genera; however, I shall only mention a few of the species cultivated, among which are several plants of the lovely chrysotis, Bensoniæ, Devonianum, McCarthiæ, thyrsiflorum, and Wardianum with growths over 2 feet long just showing flower. Of D. Falconeri, a large plant growing on a block about 22 inches long is furnished with growths from top to bottom, some of which measure from 18 inches to 3 feet long. These, with their lateral growths, form quite a mass. Others growing on large pieces of cork are becoming equally vigorous. The well-known and useful D. nobile is mostly grown in hanging baskets, in which manner the plants bear a far more characteristic appearance than when grown in pots. Of D. chrysanthum there are several sturdy growths of from 4 to nearly 6 feet; this, although old, is one of the best. Lastly, I would mention D. infundibulum, which on account of its

lasting qualities is very valuable as well as beautiful. One plant now in flower has eleven of its white-and-yellow flowers not unlike those of D. formosum, which when placed in a cool house and kept rather dry will last from six to eight weeks in perfection.

Of Epidendrums there are also many species, E. prismatocarpum, with six leading growths, having five strong spikes of bloom which last a long time in perfection. Odontoglossum Phalænopsis has been flowering freely; O. nævium has seven spikes, and seven to ten flowers on each; O. citrosmum and its variety roseum are pushing many promising spikes—as yet none of the delicate flowers are expanded. By far the most prominent Orchid now in flower is a plant of Oncidium Marshallianum, with a branched spike, bearing twenty of its rich and magnificent flowers, which are of the most beautiful yellow spotted with brown. This, with O. macranthum, might well stand in the first rank among the most beautiful of all Oncids. It requires, however, rather more warmth than the last-named, but when afforded the temperature of the Cattleya house it thrives admirably.

Lycaste Skinneri is also largely grown; where space permits, too much of it cannot be obtained, its flowers being invaluable for cutting-purposes during the dull winter months.

Among other subjects of interest are several species of Miltonia, Stanhopea, Trichopilia, Calanthe, and Sophronitis, which last are growing freely on small pieces of cork with a little moss; also many plants of the lovely Pilumna fragrans and Burlingtonia fragrans.

I had nearly forgotten that sadly too-much-neglected genus Pleione. Why are the species not more generally grown? Perhaps on account of their flowering in the absence of foliage. Certainly this need not be any objection, since they bloom at a season when flowers are scarce, and by placing a few light Ferns among them the deficiency is compensated for; indeed, they should not be absent from any collection of Orchids however small. A plant of the pretty little P. humilis produced thirteen flowers and is now sending up fourteen vigorous growths, while one plant of P. Wallichiana was a perfect mass of flower, and has now upwards of thirty strong and healthy growths. They delight in a good supply of moisture at the roots, but are rather impatient of it on the leaves, being very apt to rot at the points.

In concluding my remarks I would say that in the department set apart for plants in flower are several plants of Odontoglossum borrowed from the cool house, among which is a superb variety of Odontoglossum triumphans with eleven flowers on one spike, a number, I think, not often exceeded if equalled. The whole is under the management of Mr. E. Culley, whose skill as an Orchid-grower has long been known to those interested in horticulture; and he will be remembered by some as the curator of the once-famous Bullerian collection near Exeter, at which place I also had the opportunity of seeing the mode of treatment carried out.—C. J. White.

P.S.—Since writing the above I have again taken the measurement of the tail-like sepals of Cypripedium caudatum there referred to, and find them to be rather over 32 inches in length. While making this remark I should be glad to hear if that length has been exceeded.—C. J. W.

[Our correspondent's communication has been unavoidably postponed for several weeks.—Eds.]

UTRICULARIA MONTANA.

An arboreal or epiphytal Utricularia is a phenomenon as exceptional in the vegetable kingdom as are the flying fish, tree frog, land crab, and similar anomalies in the wide domain of animated nature. Such a plant-wonder we have in the recently introduced Utricularia montana—an acquisition to our collections, and worthy of extended cultivation, not alone for its botanical interest, but on account of the size and beauty of its delicate flowers. Anyone seeing, for the first time, this plant in flower would be likely to smile sceptically if told it belonged to the same genus as the curious little Bladderworts (Utricularia) of our pools and ditches. The fact is so, nevertheless, and our modest little aquatics have great reason to be proud of this exotic relative, which, ignoring the homes and habits of its kind, eschewing the pool and the marsh, finds its congenial feeding ground high up on the mossy trunks of trees in Trinidad, St. Vincent, and elsewhere. In habit, mode of growth, and the aspect of its flowers, it simulates and rivals some of the prettiest of epiphytal Orchidaceæ—Phalænopsids for instance. In fact, when seen, for the first time, in flower and growing in Orchid-fashion, even an accomplished plantsman might be taken-in, and tempted to exclaim, "What a pretty Orchid!"

It is scarcely more than a year since this lovely and interesting little rarity found its way to Europe. Scarcely was it introduced than, thanks to the never-tiring energy of Dr. Moore, a plant was secured for Glasnevin, where we had the pleasure of seeing and admiring it in flower on more than one occasion during the past month. The plant is a stemless epiphyte, with pale green, entire, narrow lanceolate leaves, from 4 to 6 inches long. The leaves spring from a fascicle of oval, hollow, green, semi-transparent tubers, formed on wiry fibrils, which bear at intervals minute bladders or utricles, similar to those borne hy our home species, and whence the name of the genus. The flowers are borne on a slender curved wiry scape, and may number from one to five or more. They are very large, nearly 2 inches in diameter, the pedicels about three-fourths of an inch long, the calyx-lobes pale yellowish green. The corolla is white, with a large yellow blotch on the centre of the lower lip. The upper lip or hood is roundish, with a truncated base; the lower lip is twice the size of the upper, very full and prominent in the centre, closing the throat and concealing the anthers; the spur is a stout, curved, horn-shaped body, nearly an inch long, of the same colour as the corolla.

As regards multiplication and growth, both seem to be of the easiest kind. The former is effected by means of stolons, which are freely produced somewhat after the fashion of the Strawberry. At Glasnevin it accommodates itself and flowers freely, treated either as an epiphyte and grown in a suspended basket, or as an ordinary pot plant in light open soil. The first mode, however, seems to commend itself as being the most desirable way of growing it; for as we understand that in its native haunts the plant shows to most advantage when growing on trees, so in our plant houses its effect will be enhanced when grown as an epiphyte or in a suspended basket. With regard to temperature, it requires, we believe, the heat of the stove, but as it is found not alone in Trinidad and other islands of the West Indies, but in New Grenada and Peru, it may very probably be grown successfully in an intermediate house where the heat is very moderate.—(*Irish Farmers' Gazette.*)

PINE APPLE CULTURE.—No. 2.

Heating.—By a reference to the section of the Pine house (*fig.* 1, page 456), it will be seen that along the front of the house there is a shelf 2 feet wide on which pots of winter Cucumbers, Vines, &c., are placed at intervals, and between them Dwarf Kidney Beans. Next to the shelf is a pathway 2 feet 10 inches wide, and sufficiently high to allow a person to walk underneath the Grapes that may be hanging above. Then there is a 4½-inch brick wall with a timber coping, which I like better than cemented brickwork, as not so likely to jar the pots that may be rudely placed upon it. This wall is strengthened in places by 9-inch work, and is, on the whole, 3 feet 8 inches high; there is a clear space for the tan bed of 7 feet 3 inches between it and the back wall, and 84 feet 6 inches long, giving altogether a bed on which we rarely have less than 200 plants, and often 250. There is no division in the house, and only a door at each end. The eye of the observer is either on a level with, or slightly under the fruit; consequently the plants have not, perhaps, such a good appearance as when looked down upon, which would be the case if they were in a pit, and seen from the back; but in some respects they are more easily managed than when in a pit, where there is not room to work amongst them.

The house is also advantageous, as the overheating of the tan bed can be avoided; for, in a house, we can with a little contrivance shift a few plants at one end, turn over the bed if it is becoming too hot, and replace the plants as the work goes on. Just as in trenching, the soil taken out at first is put in last, so the plants first removed are replunged last. This could not well be done in a pit where there is barely room for a man in a stooping posture or half lying down, and the removal of plants ontside in cold weather cannot be otherwise than hurtful to them. There are other advantages also in having a little room in a house—plants can be potted inside, and, in fact, all the necessary work done, so that no Pine plant nor portion of one, unless it be the crown of some favourite kind. when once it passes out of the door is ever brought back again, Only some pot Vines which may have been growing inside during the summer, and are placed out of doors to harden their wood and rest awhile prior to being taken-in in the autumn,

are allowed to re-enter, and these are only removed from the inside of the house to the outside of it, as they are placed during August and September against the front wall outside, where they are fully exposed to the sun.

Another advantage is that a large portion of the tan may be removed without disturbing the plants at all; and when the danger of overheating is not very great, it is much better that they should not be moved at all, as, however carefully the work is executed, a partial loosening at the neck always takes place, especially with large plants. To avoid this and the consequent rupture of some of the roots, I have been in the habit of pulling out the tan from between the pots with something like a garden hoe or coal rake. The plants are rarely plunged more than 4 inches deep at first, on account of the danger of overheating, but even at that depth I have known injury done, and as they are usually placed quincunx fashion, the tan has to be drawn out diagonally; but unless the heat is very violent, drawing out the tan in one direction is usually sufficient. It is merely allowed to lie on the path a few days—a week or so—until the heat subsides, when it is put back again. By careful management the tan may be withdrawn until furrows are made several inches below the bottoms of the pots, so that the latter are not liable to overheating; but as it is always better when a steady instead of a violent heat can be secured at first, I endeavour to have any new tan that may be required dried a little previous to use. In summer there is no difficulty in this, but in winter it is not so easily done. However, where a dry floor under cover can be secured it will dry considerably in a few days; moreover, if the heat in the old tan be found pretty good, it is better not to add too much to it in turning, but to place the new at top. It is astonishing how long old tan will retain its heat, even when it is reduced to a very fine leaf-mould-like material; but it is better on all occasions, if possible, to prevent its ever heating so as to scald itself into a white or dry condition.

I need hardly say, that in turning or mixing the tan bed the same plan is adopted as in trenching ground, new tan being added in the same manner as dung is in the latter case, unless there is reason to think it will overheat, when the new tan is best placed on the top. Another method I have adopted with some advantage is, when the bed is being turned, to insert draining pipes at various places in the bed. Small 2-inch pipes will answer, and if a stake be placed inside them to keep them upright, about three pipes will usually do at a spot. These act as flues, and although somewhat in the way when the plants are plunged, they can usually be pushed a little aside to allow the pot a place. I have found them very useful, and, though not much seen, they are not unsightly.

As regards the tan used I can give but little information; many years ago I had occasion to use some that was very unsatisfactory, as it did not seem inclined to heat at all. At the time I suspected chemicals had been used in the tanpit, but whether this was so or not I cannot say; certainly what I have had lately has not been faulty in this respect. When purchasing tan it is well to insure that it is fresh, and has not been lying in a large heap in which it may have heated to excess and become exhausted. Secure what is wanted beforehand, have it fresh and dry, and sweeten it at home. In fine weather, if it be spread a foot or less thick on dry clean ground, say on a pavement or macadamised road, and turned once or twice a-day, heaping it up at night and throwing mats over it if there be danger of rain, it will soon be dry enough for use; but when an entirely new bed has to be made great care should be taken against overheating. It is in this case advisable to use a comparatively small quantity of tan, and add more as required; or if the bulk is well mixed, heated, and turned outdoors before being brought in, so much the better. Even then care must be taken that it do not become too hot, as tan is sometimes treacherous in this respect, and total destruction is not unfrequently the consequence. Wherever a number of Pines with overgrown crowns and fruit of small size are to be seen, overheating will generally be found to have been the cause; therefore, as soon as the bed is finished and the plants all in their places, put in some sticks at various places, and examine them every day, or more than once a-day after the first three or four; a little practice will enable anyone to judge how much warmth is useful and how much dangerous without the aid of the thermometer. If, however, there be any doubts, this instrument may be used, and may be inserted to a sufficient depth in the bed to insure its being affected by the heat, which, if exceeding 90°, may be pronounced dangerous, but it very often rises much higher; I have known it reach 140°, when, of course, immediate action became necessary; in fact, the plants had been removed before it even approached that point. Sudden rises in the bottom temperature are not uncommon where tan is used, and in consequence some good Pine-growers avoid its use altogether, and content themselves with leaves alone or fire heat. I must say, however, that I have, perhaps, a weakness for tan, and am unwilling to abandon its use when its excessive heat can be checked by the means described.

Leaves.—The leaves of Oak, Beech, and Sweet Chestnut give a steady, long-continued heat; they never become too hot, and rarely too cold. Many Pine-growers prefer them to tan, and the mild heat they afford seems to be more agreeable to vegetation than any artificial heat from fire and water; but it is, perhaps, not so great as is necessary in some cases where Pine suckers have to be urged into fruit in twelve months. A leaf-bed is of great assistance in Pine-growing, and when supplemented with plenty of hot-water pipes for top heat, all will go on well; and in country places at great distances from a tanyard, and where tree leaves are good and plentiful, they may be used with a good result. The leaf-bed must, however, be deeper than the tan bed, or capable of containing more, as quantity is essential. Care must also be taken in collecting the leaves, so that they may not be mixed with those of the Lime, Elm, Sycamore, and several others, which are far inferior to Oak and Beech leaves. The latter, in my opinion, are the best—better than the Sweet Chestnut leaves, but these are not to be despised, and, being larger, are collected with greater ease than the others.

When the Pine plants are plunged in the leaf-bed the pots may be buried up to their rims, as there is no fear in general of leaves overheating, and an inch or two of tan on the top gives a better face to the whole. Some, in fact, use about a foot of tan over the leaves—sufficient for entirely plunging the plants. This the grower may please himself about. Tan is certainly a more agreeable material to work in, but in the case of mere plunging it exercises no particular influence on the plant.

Bed-heating by Hot Water.—There are various modifications of this mode of applying heat; the most common is to have two or more horizontal pipes some distance apart, in a chamber with a floor above, on which tan, cocoa fibre, or some other plunging material is placed, or they may be covered with rubble, with smaller stones on the top, some durable kind of litter over the top of these, and then the plunging material, or the soil in which the Pines are planted. This mode of applying bottom heat is better adapted for Pines than for very early Vines, for it is seldom that much forcing at the root is good for them; but very good Pines are often grown in this way, both in pots and planted out. The evils of the latter method are, that there is no control over the fruiting, and Queens, in particular, are so prone to form suckers, that the plan as a whole is less practised now than it was twenty years ago. It must be acknowledged that the dry bottom heat thus afforded differs widely from the nice moist heat supplied by such fermenting materials as tan or leaves, and the substitution of the open trough for the closed-up pipe has often led to the opposite extreme. Some, it is true, have a hot-water pipe placed inside a trough of water, and the heat thus applied is sufficient to warm the water in the trough to the requisite temperature, and it is evaporated as required. Sometimes, also, the water can be drained-off entirely when a dry heat is wanted, but complicated apparatus are always getting out of order. Bottom heat so applied has been turned to the best account by nurserymen and others, and I know that excellent Pines are so grown; and as the heating here is more under command than in the cases where fermenting material is used, hot water commends itself to the many, to whom coals and cast iron are more familiar than tree leaves and tan.

Although bottom heat is very essential for the Pine Apple, atmospheric heat is equally necessary, and the requisite number of pipes to heat the atmosphere surrounding the plants must be supplied. It is thought good practice to arrange the heating apparatus so that the whole heating power can be thrown either into the top or bottom heating pipes as may be necessary. In a cold winter's night it may be of advantage to heat the atmosphere as much as possible, while in hot summer weather the bottom heat only will be wanted, and by means of stop-taps, &c., this may be accomplished with but very little trouble.

With regard to the character of the boilers and pipe-connections, I shall merely observe that the inexperienced should rely on known good apparatus rather than try novelties, which are

only said to be better by some ardent enthusiast who has not had long-enough experience in them to find out that there is an awkward break-down now and then with all complicated contrivances. Many new boilers have been introduced during the last twenty years, but the old saddle still retains its place.

Other Modes of Supplying Bottom Heat.—Even before the age of hot water, attempts were made to supply bottom heat by the flue or open chamber, and occasionally it has been tried since, but the results have been far from satisfactory. A dry ungenial warmth may be maintained at great cost, but its inconvenience, added to its ill effects on the plants placed over it, has never been surmounted. The old flue is by no means to be despised for many purposes, but for Pine-growing where a tropical heat is required all the year round, hot water is by general consent regarded as the most efficient mode of affording top heat; and where the coal pit is near, the tanyard distant, and tree leaves scarce, it is an excellent method of supplying bottom heat. Cotton waste has been used with advantage in some places, and a similar and more endurable material is furnished by woollen manufacturers, only it is of far greater value as a manure than as a heat-giving material. In the agricultural districts large quantities are used as manure for Hops and fruits. Cocoa-nut fibre has also been employed by some, but its value for other purposes has raised its price too high for hotbed-making. It may here be remarked, that a steadily fermenting material imparting a heat of less than 100°, and capable of withstanding decay for a long time, would be a boon to the forcing gardener, for it is the short duration of the heat afforded by many materials that renders them unsuitable for the Pine-grower.—J. Robson.

THE RHODODENDRON SHOWS.

From the multitude of fibrous roots which the Rhododendron produces it may be lifted with impunity almost at any time, even when coming into flower; and availing themselves of this property, the great growers of Bagshot and its neighbourhood have yearly in June placed before the eyes of London dwellers perhaps the most splendid masses of colour which any one plant is capable of producing. We have so often described their exhibitions, or rather attempted to do so, that it is a repetition to refer to their splendour, varying, it is true, from year to year in degree, but still such that no one who has not seen them can, from description, form any just idea of the scene which they present.

Mr. Anthony Waterer, of Knap Hill Nursery, Woking, holds his Show in the Royal Horticultural Society's Garden at South Kensington, under the same great tent as that in which he exhibited last year. The ground is skilfully laid out with beds of varying height, margined with the greenest of turf, and divided from each other by undulating, sweeping walks, whilst near the entrance is a mound from which a view of the two thousand or three thousand plants which are here collected can be obtained. We will not attempt to name the many established favourites which are among them, but will confine ourselves to mentioning a few of the newer kinds, whose merits are not so generally known. Of these Charles Bagley is very fine, with large trusses of cherry red flowers; Sir Thomas Sebright is a rich purple with a bronze blotch, large in truss, and a very free bloomer. Mrs. William Bovill, with bright rosy crimson flowers; Mrs. R. S. Holford, salmon rose, large in flower and truss; Lady F. Crossley, rosy pink; and Lady Armstrong, pale rose, are also very fine. Miss Owen, rose, changing to white, is very pretty, in its young state resembling Apple blossom. Mrs. John Waterer, Mrs. John Clutton, Othello, Minnie, Lady Clermont, and others, which have all been noticed before, are also in fine bloom. There are, besides, several unnamed seedlings, fine in colour and large in truss.

Messrs. John Waterer & Sons, of Bagshot, who exhibit in the Royal Botanic Society's Garden, Regent's Park, have, as usual, an excellent display, including several magnificent standards. Of the new varieties, Frederick Waterer, intense crimson, is splendid in colour, and large both in flower and truss; while John Walter is another very fine crimson. Lady Eleanor Catchcart, Michael Waterer, Mrs. John Clutton, Mrs. John Penn, Mrs. Thomas Longman, Princess Mary of Cambridge, The Queen, and Vandyke are the most conspicuous of the more recent varieties. Here, too, there are several promising seedlings.

Leeds Horticultural Society.—The show was of a first-class character. It was opened by the Mayor (Alderman Barran), who was accompanied by Alderman Addyman and Mr. James Birbeck, the active Secretary of the Society, in his inspection of the flowers, fruit, and vegetables, which were displayed with so much taste, and to such excellent effect, in the several marquees radiating from the central tent. Afterwards, his Worship ascended a stand in the principal marquee, and in opening the Exhibition remarked that shows of that kind could not fail to yield general pleasure, as their influences were all of a refining character. The exertions of the Committee must have been very great, as all must concede when they carefully examined the numerous floral and horticultural treasures displayed in the several tents; and although the motto of the Committee appeared to be *nil desperandum*, it must be remembered that the race was not always to the swift nor the battle to the strong. The Leeds Society had now succeeded in getting together one of the finest shows in the provinces, and the town had great reason to be proud that there were men among them who took the pains and displayed the talent necessary to secure such a desirable result. It was highly desirable that they should have from time to time exhibitions of this kind, and he hoped they would be long continued. But he would express another hope, which was, that the people should have them in their own grounds. [Hear, hear, and applause.] They would allow him to say that this was one of the objects the Council contemplated in desiring to close Roundhay Park for ten days during the year. They thought of holding the flower show there, having galas for the Infirmary and other charitable institutions, and thus securing for the people far more enjoyment than they could have if they were without the park. He hoped, then, that the time was not far distant when they would have the privilege of holding the show at Roundhay Park, and he did not think when the time came the funds of the Society would suffer from the change of locality. In proposing a vote of thanks to the Mayor, Alderman Addyman appealed to the tradespeople of the town for pecuniary support, as many of them obtained a great deal from the Show. When all was paid off last year the Society had only 5½*d.* left. Acknowledging the vote, which was carried with acclamation, the Mayor seconded this appeal, and mentioned that the expenses of the Society were £1200 a-year.

GARDENERS' GENERAL ASSOCIATION.

A public preliminary meeting of gardeners was held on the 10th at the British School-room, Anglesea Place, Durdham Down, Bristol, to appoint a Committee to draw up rules with a view to the organisation of the gardeners. There was a good attendance. Mr. G. Webley presided, and read a letter from the Mayor approving generally of such organisations, but stating that in consequence of his other duties he was unable to attend the meeting, and promising when they had passed their rules, if he approved of them, he would have no objection to attend a public meeting and advocate its objects. The Chairman said he did not wish to be considered an agitator, but he thought it his duty to step out of the way and advocate an organisation among the gardeners of Bristol, who, he contended, were, as a class, one of the worst paid and overworked classes in the community. He objected to strikes, and said that if any such thing were contemplated by that organisation he would have nothing to do with it. He then briefly sketched what he supposed would be the objects of the organisation—namely, mutual aid, for which contributions would be paid to assist members in sickness and when out of employment. If they passed the resolutions which would be submitted to them, it would be a step in the right direction, and would be the means of redressing the many evils which existed among them. He had no doubt the members of the Association would them. He had no doubt the members of the Association would ultimately give essays on the best culture of fruits, flowers, and vegetables. Mr. Smith moved the first resolution, "That this meeting, whilst disapproving and discountenancing strikes, is of opinion that by an organisation of gardeners throughout the country their professional interests would become better represented, and pledges itself to support the present movement with a view to secure the same." Mr. Bees seconded the motion, which was carried unanimously. Mr. Stevens moved the second resolution, "That, in the opinion of this meeting, rules relating to the formation of an organisation should be drawn up and submitted to a subsequent public meeting for approval; the present meeting of gardeners to elect a Committee for that purpose forthwith." The motion was seconded by Mr. Pillinger, supported by Mr. Haines, and carried unanimously.

The following gardeners were appointed the Committee *pro tem.*—G. Webley, Chairman; H. Stevens, Vice-Chairman; W. H. Smith, Hon. Sec.; F. A. Arnott, W. Pillinger, T. Evans, G. Moore, J. Bees, J. Morris, F. Sharp, T. Harwood, E. Guppy, W. Harris, and Mr. Haines, with power to add to their number. The Committee then held a short consultation, and arranged to meet on Tuesday, 18th inst., to consider the rules. Gardeners interested in the movement, and desirous to communicate any suggestions bearing upon the rules, should write at once to Mr. Smith, The Gardens, Old Sneed Park, Bristol. The next public meeting will be duly advertised.

New Use for Cats.—A correspondent of *Land and Water* writes:—It often appears to me that people for the most part are not aware of the great use cats are to us. Of course, we know of their use with respect to mice and rats, but do we

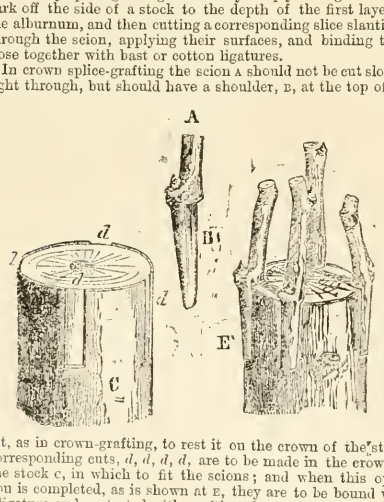
generally know of the invaluable help they can give us in protecting from birds our garden fruit and flowers? The late heavy rains this spring have given us the promise of abundance of Strawberries, and in the south, at least, the bloom is magnificent. To keep off the birds how simple, how certain, how small is the cost of a cat on a small chain sliding on a wire, and giving the animal the walk up and down the whole length of the Strawberry beds. A knot at each end of the wire readily prevents the cat from twisting round the post which supports the wire, and a small kennel placed in the middle of the walk affords her shelter and a home for her kittens. In large gardens a second cat is required, and the young ones in their frequent visits to each other greatly assist in scaring away the birds. I have for more than thirty years used, and seen used with perfect success, this easy method of protecting fruit, and the very same plan is equally good in keeping hares and rabbits off flower-beds. After the first few days cats in no way dislike this partial restraint, and when set quite free, after a few weeks' watching, they will of their own accord continue on guard. The kittens, more especially, attach themselves to this garden occupation, and of their own accord become the gardener's best allies.

GRAFTING.—No. 8.

What the French call *Greffe en Placage* is what has been long known in this country as "splice-grafting." It is generally adopted for certain trees and shrubs when the scion is in a state of growth, and also for propagation under hand-glasses. It is done in the open air or in a propagating house at the rise of the sap rather than at its descent, and is particularly applicable to evergreens. A stock with the sap just on the move and a free scion are the two conditions. The scion may be either of the current year or of the preceding one, according as the grafting is done in autumn or in spring. Its length varies from 2 to 6 inches, and should be cut slanting, without the least inequality, so as to fit it exactly to the stock. If it is an evergreen, the leaves are to be retained, and it is to be taken from the parent tree at the time of grafting. A corresponding cut to that on the scion is made on the stock, and the union of the two parts takes place without any split of the wood by simple application on the top or the side of the stock, either under the bark or without it, and with one or more scions.

Ordinary splice-grafting is done by simply taking a slice of bark off the side of a stock to the depth of the first layer of the alburnum, and then cutting a corresponding slice slantingly through the scion, applying their surfaces, and binding them close together with bast or cotton ligatures.

In crown splice-grafting the scion A should not be cut sloping right through, but should have a shoulder, B, at the top of the



cut, as in crown-grafting, to rest it on the crown of the stock. Corresponding cuts, *d*, *d*, *d*, *d*, are to be made in the crown of the stock C, in which to fit the scions; and when this operation is completed, as is shown at E, they are to be bound with a ligature and protected with grafting clay or wax.

In the illustration the bark alone has been taken off; the alburnum has not been interfered with. A thick tree would be easier to graft than a thin-stemmed one, because the latter would have such a sharp curve that a portion of the alburnum would have to be sliced off in order to fit on the flat section of the scion. In the case of an old stock with thick bark there is a danger of the graft shifting beneath the tie. The remedy is to cut the slice so as to leave the sloping part tolerably thick, or, better, to place something between the graft and the tying—say the piece of bark removed from the stock. Besides, in making ready the place for the scion, the strip of bark need not be separated from the stock, but may be left attached to it, and bound up along with the scion.

There are two periods at which this mode of grafting can be performed—namely, at the rise of the sap in March or April, and at its descent in September or October.—Baltet, *L'Art de Greffer*.

NOTES AND GLEANINGS.

We have to record the death of one of our veteran botanists, Dr. Robert Wight, F.R.S., who died May 26th, at his residence, Grazeley Lodge, near Reading, at the age of 76. Dr. Wight was a native of East Lothian, and very early in life entered the medical service of the East India Company, and while in this employment devoted his energies to the investigation of the then almost unknown flora of the British possessions in India. In 1834 he published, in conjunction with the late Professor Arnott, the first volume of the "Prodromus Floræ Indiæ Orientalis," a work which was never continued. Further contributions to Indian botany were contained in his "Illustrations of Indian Botany," "Icones Plantarum Indiæ Orientalis," and "Spicilegium Neilgherrense," and in innumerable contributions to magazines and to the proceedings of societies. His name will also always be associated with his exertions towards the introduction of the cultivation of cotton into India. Dr. Wight was one of a band of botanists, to which Sir W. Hooker, Lindley, and Arnott belonged, who have now almost entirely passd away.—(*Nature*.)

—— Death of Mr. Rose.—It is but three months ago that it was our painful duty to record the loss of Mr. Ingram, who had been gardener to four of our monarchs, and who, after more than half a century's service, retired from the management of the Royal Gardens at Frogmore; and to-day we have to announce the decease of his much-esteemed successor, Mr. Hector Rose, which took place on the 5th inst. He was well known as an excellent gardener, and though he had not been more than three years at Frogmore, there, as at Floors Castle, where he was gardener to the Duke of Roxburghe, he won good opinions on all sides.

PORTRAITS OF PLANTS, FLOWERS, and FRUITS.

Cypripedium longifolium (Long-leaved Lady's-slipper). *Nat. ord.*, Orchidaceæ. *Linn.*, Gyuandria Monandria.—A very tall and handsome plant, though its flowers are not so beautiful as those of other species, being yellowish green stained partially with dull purple. It was discovered by M. Warszewicz in the Cordillera of Chiriqui, Central America, at elevations between 5–8000 feet. Mr. Bull, nurseryman, Chelsea, exhibited it at the January meeting of the Horticultural Society.—(*Bot. Mag.*, *t.* 5970.)

Grevillea rosmarinifolia (Rosemary-leaved Grevillea). *Nat. ord.*, Proteaceæ. *Linn.*, Tetrandria Monogynia.—Native of New South Wales, where it was discovered in 1822 by Mr. A. Cunningham. It is a robust dark-foliaged evergreen, thriving in the open air in the west of England, but requiring a greenhouse or sheltered wall elsewhere. Its flowers are in dense racemes, deep crimson, tipped with greenish yellow.—(*Ibid.*, *t.* 5971.)

Asterostigma Luschnathianum. *Nat. ord.*, Aroideæ. *Linn.*, Monœcia Polyandria.—Amateurs will more readily comprehend the form of this plant when we add that it was named at its first discovery Arum Dracontium, though it differs very much from the plant so named and described in our botanical works. It is a Brazilian species, and now for the first time introduced into Europe. The spathe is green speckled with brown, the anthers of the spadix are scarlet, the leaf is pinnatifid, the stalk banded with dark purple streaks.—(*Ibid.*, *t.* 5972.)

Olearia dentata (Toothed Olearia). *Nat. ord.*, Compositæ. *Linn.*, Syngenesia superflua.—The form of its flowers will be at once appreciated by our stating that it was formerly included in the genus Aster, and had the various specific names applied of dentatus, tomentosus, and ferruginens. Dr. Hooker says, "This is one of the beautiful Daisy-trees of the Australian colonies, a genus of plants many of which would thrive well and form great ornaments in the gardens of the mild part of western England, and some of which stood for several winters in sheltered water at Kew, but were killed during recent cold winters.

"The present species forms a fine bush in the Scilly Isles, where it was introduced by Augustus Smith, Esq., into his

garden at Tresco Abbey, St. Mary's, it is believed from Kew, a good many years ago. I had the pleasure of visiting these gardens about fifteen years ago, with my late friends Prof. Harvey, of Dublin, and Veitch (the grandfather and founder of the firm), when we were all astonished and delighted with the luxuriance and variety, especially of the Cape and Australian vegetation they displayed. Since that period Mr. Smith has added many hundred species to his collection, and I have the pleasure of receiving every early spring a hamper of cut flowers of rare (with us) greenhouse plants cultivated in the open air, when the Snowdrop and the Winter Aconite are the only plants to be seen flowering in our open borders.

"Olearia dentata is a native of various localities in the East coast of Australia, from Port Jackson, the Blue Mountains, and Illawarra, southward to Twofold Bay."—(*Ibid., t.* 5973.)

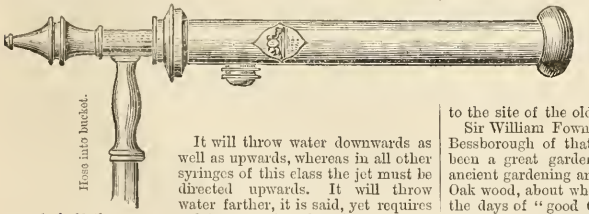
Crotalaria Heyneana (Mr. Heyne's Crotalaria). *Nat. ord.*, Leguminosæ. *Linn.*, Monadelphia Decandria.—This genus is closely related to the Lupine. Of this species, which is an under-shrub 1–2 feet high, the flowers are white variously marked with blue. It "is a native of the western coast of the Indian Peninsula from Canara to Travancor, but is apparently rare. It was discovered in the early part of the century by the botanist and missionary, Heyne. The specimen here figured was raised from seed sent to the Royal Gardens in 1868 by Major Beddome, F.L.S., of the Madras Forest Department: it flowered in the Palm House in March of the present year."—(*Ibid., t.* 5974.)

Petunias—*Souvenir de Chiswick and Pantaloon.*—These are double-fringed varieties, they were "raised at Chiswick, and, we believe, rank amongst the earliest of the fringed double-flowered varieties. Their history is this:—Mr. Barron obtained from a packet of continental Petunia seed one plant which produced single flowers having the margin fringed. A cross was effected between this and some of the double-flowered sorts grown at Chiswick, and the result was the production of varieties combining the double flowers with the fringed margin. Pantaloon, the lighter, is a very distinct and handsome mottled and margined flower. That named Souvenir de Chiswick is equally handsome, but darker in the ground colour, and more blotched than margined.

"These double-flowered Petunias are exceedingly valuable as decorative pot plants for the greenhouse and conservatory, their habit being so much more compact than most of the single-flowered sorts, and the flowers so much more durable. The grotesque markings of the blotched sorts also give them a distinctive and interesting appearance. Young plants raised annually in succession, and grown on for the purpose, form some of the prettiest objects which can be provided for the ornamentation of this department of the garden."—(*Florist and Pomologist*, 3 s. v., 121.)

THE JET D'EAU.

We have reason for believing that this garden engine is manufactured by Messrs. Purser upon an entirely new principle, and is the easiest working of any.



It will throw water downwards as well as upwards, whereas in all other syringes of this class the jet must be directed upwards. It will throw water farther, it is said, yet requires scarcely half the power used for any other throwing the same quantity of water.

Obtaining Double Flowers.—From an old gardener who was celebrated for his Stock Gilliflowers I obtained the following information:—His plan was to save seed from the semi-double plants only, and to carefully wrap up the seed in brown paper, not to be again opened for five years. He showed me his collection of seeds, and gave me some of white and crimson from packages which he declared had been saved five years. I sowed those seeds, and the next year found nearly all the plants produced double flowers.—E. J. D.—(*English Mechanic and World of Science.*)

WOODSTOCK PARK.—No. 2.

The Residence of the Right Hon. W. F. Tighe.

Again we take a view of the piled-up and picturesque houses of the village of Inistioge; then we ascend the zigzag street and reach the main entrance-gate—a plain massive gate and lodge, quite in keeping with everything that has been designed or risen-up under the eye of the present owners of Woodstock. There are so many things of interest that meet the eye at Inistioge, that it is difficult to select what is most worthy of notice before we leave this charming old town, but there are in the old churchyard here tombstones to the memory of more than one gardener, also stewards, who had "faithfully" served the Rt. Hon. W. F. Tighe, and whose memories this *good* master has worthily recorded in marble.

We have long felt that the approach to a residence like Woodstock is one of the most difficult things to deal with in landscape gardening. So much disappointment has arisen in dealing with approaches, and so much has been written by Repton, Gilpin, and other authorities on this point, that we may be excused for entering into some particulars of what constitutes one of the finest examples of approaches that we have seen with one exception; this exception is, that the approach should have started from near the police barracks, and gradually risen to the line of approach above Mount Sandford. We see no engineering difficulty in carrying out this line, and if it were done, it would make this noble place one of the most complete that could be imagined.

But we must proceed to speak of the beautiful scene as we enter the park. On the right the ground rises to a well-wooded ridge, and near the drive are a great variety of forest trees in groups, and the Walnut here gives fine effect at this time, when the rich bronzy leaves are seen against the soft yellow green of the Beech. The river and the bridge as seen from near the gate form a picture of rare composition. Nearing the mansion the scene changes, all trace of the river disappears, and the farms on the far side look as if merging into the park. From this point the wooded side of Mount Alto forms a bold boundary on the upper or south side of the park, and right opposite is the lofty Brandon with the small picturesque fields stretching far up its side.

From the Inistioge entrance to Woodstock House is about a mile. This drive is kept in the finest order, and gives a refined impression of the house it leads to. No underwood is seen from this drive, but great masses of the common Brake afford fine furnishing and cover for the deer, which, with sheep, graze up to the hall door. Nothing in the form of garden or pleasure ground is seen from the approach, but in passing from the entrance-hall to the drawing-room we at once look over a picture as new to us in character as it is strikingly beautiful, and which our feeble pen can but poorly portray.

Woodstock House (see page 462), is an unpretending building of the Grecian style; it was built about 130 years ago by Sir William Fownes, Bart., the great-grandfather of the present owner. David Binson, of Limerick, was the architect; he was a man of great ability, and his designs are well known in the south of Ireland. The site of Woodstock is fine and commanding, and is an extraordinary contrast to the site of the old mansion.

Sir William Fownes was married to a sister of the Earl of Bessborough of that day, and this "Lady Betty" must have been a great gardener, for we still find fragments of her ancient gardening and planting bearing her name. The large Oak wood, about which we made some remarks, was called in the days of "good Queen Bess" "the wood of great Oaks," and with other lands had been granted to Edmund Butler, one of the Ormond family. This wood and lands afterwards came into the possession of Colonel Tighe's ancestors by purchase, and so formed a compact part of this extensive and beautiful residence.

It is not only the garden that surprises as we look from the drawing-room windows, but a great expanse of beautiful wooded country, terminated by the rocky ridges near Wexford, more than twenty miles distant. On the left of the river as far as seen, stretching round the extended base of Brandon, is the property of Colonel Tighe, and miles farther on to the river Barrow. Here is a position for the landscape painter to study

the "three distances;" but here we shall only speak of foreground and middle distance. The foreground is a well-proportioned terrace, supported on the left and front with massive granite walls, ornamented with balls, urns, and vases of fine proportions and highly-finished work. The terrace is divided into four panels; the walks are 15 feet wide, with the same width on each side of the smoothest grass, each panel being sunk about 20 inches from the level of the main walks. The two panels next the house are laid out on gravel with very chastely designed scroll beds, planted with evergreen shrubs. The gravel is of a warm red colour, and is found in seams in a granite quarry. Both panels have a frame of evergreens. The chief plants used in beds and scrolls are Alexandrian Laurel, Rosemary, Lavender Cotton, Savin, Juniper, Escallonia macrantha, and Box; for spiral trees, varieties of Yews and Cypress are planted. The two panels farthest from the house are laid-out in the form of St. Andrew's cross with stout edgings of Box. The two end parts are laid-out on red gravel, with scrollwork in the form of the Grecian Honeysuckle; the sides are bordered with low shrubs, and planted with flowering plants in summer. A granite vase of great size (home manufacture) stands in the centre of each panel, which vases are filled with flowering plants.

Two large beds with dressed stone kerbing stand on each side of the splendid flight of steps leading to the drawing-room door. The New Zealand Flax and the Dracæna indivisa have a grand and quite exotic effect in these beds; some of the Dracænas are at least 9 feet high, with stems more than 4 inches in diameter. These plants were raised from seed in 1863, and were planted-out where they now stand about six years ago. The Aralia Sieboldi is also growing finely, and in a few years will be one of the gems in the decoration of this terrace.

It would take a little book to give all the interesting details

Woodstock.

of this gem of an art garden. Well may Colonel and Lady Louisa Tighe be proud of it. One can hardly realise that little more than ten years have passed since over 200,000 cubic yards were carted-in to form this terrace, which at the lower side is raised 15 feet above the ground level. Now it appears as if it had grown up with the house.

The Araucaria avenue forms a fine feature; seen from the new terrace it touches the pleasure ground at an oblique angle, and runs parallel with the rock garden. It was from this rock garden that the material was excavated to form the terrace. We only glance at the Magnolia garden and the giant Hydrangeas, which are just showing signs of reviving spring, and proceed to the Araucaria avenue.

The new terrace is nearly at the bottom of the dressed pleasure grounds, and the enclosed grounds rise on a considerable slope for about a quarter of a mile in a straight line. The gradation from the new terrace is well done; the first green ramp has about 6 feet rise, and the slope is easy and highly finished; then a hanging flat of grass 50 feet wide, and then a gentle slope of about 2 feet of rise, and we land on a broad sward of swelling ground. This ground appears natural, but a great deal has been done by adding to the lower side to make it so. The main walk is 15 feet wide, and the granite steps corresponding with the ramps are the full length in one piece.

The walk leading to the rock garden leaves the main walk at right angles, and here are two magnificent specimens of the great Californian Cypress, about 50 feet high. These trees were transplanted eleven years ago, their height then was about 30 feet. Twenty years hence the numerous fine young trees of this species at Woodstock will be worth going to see. There is nothing about this part of Woodstock to give the least idea of rock, and on entering the rockery the effect is very striking. We enter by a good sunk road, and at once we are in an expanding mass of rocks and exotic-looking plants, with a miniature lake and islands covered with Bamboo, New Zealand Flax, and kindred plants. Here again the Dracæna indivisa is grand. In many places this rockery would be considered a great work; never in this class of garden have we seen component parts so well united—

> "To form one beauteous well-connected whole,
> To charm the eye and captivate the soul."

It would be worse than useless to attempt to describe in a paper like this the details of such a rock garden where there is such a wealth of rare things. It may interest some to know, that the more valued plants in the rock garden have in certain cases beds 5 feet deep prepared for them, and filled with peat, leaf mould, or the kind of material best suited to the plants intended to be grown; yet this preparation is not perceptible to strangers, but the results are unmistakeable. We are greatly pleased with the Araucaria avenue. This avenue, and the transplanting of the trees, have so often been

noticed in public journals, that we shall here only record the present appearance of the trees, which is highly encouraging. Some twelve years ago these trees were mere skeletons, and the fragments we noticed in the glen are part of the same lot when transplanted. With one exception the trees in this avenue are fine, healthy, and with a little more assistance in a few years will be a sight perfectly unique in Ireland.

The young trees of rare kinds are growing-up with great rapidity. In the wood on the left of this avenue, and behind the rock garden on the opposite side, the trees have a charming appearance. A quantity of fine "mixture" for trees was being carted on to this ground. We were, however, disappointed to learn from Mr. Matheson that this strip of ground is to be laid down in grass. This ground being outside the enclosed grounds, and considering its position with regard to the rock garden, we think the natural growth of Billberry, Heather, Fern, and Wood Rush, &c., is infinitely more interesting and in better keeping than a poor covering of weedy grass.

We must defer our remaining notes on the gardens.

AQUILEGIA GLANDULOSA.

THERE are coincidences in every man's life that are very remarkable. A man who was our gardener forty years ago, was by our desk and reminding us of "deeds of other days," when one of our clerks brought to us a group of the flowers of Aquilegia glandulosa, and our gardener exclaimed—"Why, these were in your garden!" and so they were, and we looked at them and had called-up before us forms and happy doings in that garden of "long, long ago." We could dwell upon that past, but we must be content silently to mourn for those gone, and remember that we live for the living.

Therefore, we will at once state that the group of Aquilegia glandulosa flowers was sent to us by Messrs. Carter and Co., nursery and seedsmen, High Holborn. We believe that they have raised a good supply of its seed, and we can attest the truth of this statement in their note, "It is difficult to obtain seed of this species."

A taste for herbaceous plants is reviving, and once more we express the pleasure this gives us; for however much we admire the stereotyped beauty of bedded-out plants, we no less admire the beauty—the varied successional beauty—of the herbaceous and annual flower borders. Everyone who admires these should have among them Aquilegia glandulosa. It is one of the most graceful and beautiful of flowers, its large blue sepals around its group of white petals render it a fitting bridal flower, and its tender green foliage is no less appropriate.

Aquilegia glandulosa.

It is the Aquilegia speciosa of De Candolle, but is usually described by other botanists as A. glandulosa var. discolor, or Two-coloured Glanded Columbine. More than twenty years since it was fully noticed by a good authority.

"This plant is a native of some of the mountains of Chinese Tartary, seldom exceeding a foot in height, blooming sparingly, and although possessed of elegance and beauty, the blossoms seldom much more than 1 inch in diameter.

"The experiments made on the plant at the Forres Nurseries failed in producing any valuable hybrid varieties with colours superior to those of the normal plant; but while the colours generally remained unchanged, the size and vigour of some of the seedling plants were very much increased—properties which have continued during the last ten years throughout repeated crops of seedling plants. In ordinary favourable seasons plants from three to seven years old generally rise from 1½ foot to 2 feet high, and furnished with from forty to a hundred blossoms each, many of the blooms being upwards of 4 inches in diameter, and of a form and substance far superior to that of the original plant. This improved plant is not apt to sport or change its colours, and seldom runs in any direction, except to a degenerate or diminutive size.

"This Columbine is quite hardy and adapted for flower-beds in the open ground, where it requires no protection in winter. During the months of May and June, when well grown, it is by far the most gay and attractive flower of the season. It is also adapted for being forced into bloom early in spring, when it forms a rich embellishment in the greenhouse. Plants from seed sometimes flower during the second, but more commonly the third, summer of their growth. On first flowering, the plants generally yield from six to ten blooms, but for several years after the number increases greatly, and, when favourably treated, some plants have been known to yield in one summer eighty blooms, many of them upwards of 4 inches in diameter. In the course of eight or ten years the plants get exhausted, when the flowering becomes very uncertain; the ground should therefore be cleared of such, and filled up with healthy young plants. The seeds of this plant are ripe by the beginning of autumn, and may be sown any time before the end of March. When sown in autumn, some plants generally appear above ground in course of a few weeks, but the principal part commonly lies dormant until spring. Such as appear before winter require to be protected, lest they be ejected from the ground by severe frost. It is not unusual for seeds of this plant to vegetate after remaining in the ground many months. In a hotbed they push more readily, but under any circumstances they are more stiff to vegetate than any other Aquilegia, and generally rise very unequal, even when the seeds are newly ripened. The ground for seeds should be rich and friable, and the covering very thin, with constant moisture, and wholly or partially shaded. That most suitable is a rich mellow earth, partaking a little of bog or peat earth, and rather cool and moist than otherwise. Seedling plants should be removed either the first or second year of their growth, and transplanted into beds or lines, from 10 to 12 inches plant from plant. Those of equal strength should be placed together, as such form the most complete appearance in a flower-bed. Any time from September to April, in open weather, admits of the plants being removed; but no plants can be depended on to flower freely if transplanted when beyond the age of three years.

"When better known it will be much more widely grown, and a more really charming plant for flowering in May and June we do not possess. When once seen in bloom its cultivation in every garden will be certain."

WORK FOR THE WEEK.

KITCHEN GARDEN.

The present weather is favourable for all kitchen garden operations, particularly planting, which should be proceeded with directly. A last sowing should now be made of the Walcheren *Broccoli*, and the late *Cauliflower*; this crop will continue the supply up to Christmas. Plant out a good breadth of Brussels Sprouts and the early Broccolis. If the plants have been kept thin, the early sowing will now be stocky Plant with a trowel in a shallow trench or deep drill; there is a little more trouble in this than the more common way of planting with the dibble and setting-stick, but the trouble is repaid by the more rapid growth of the crop. *Carrots, Onions, Parsley*, and most other summer crops should now have their final thinning. Sow a good bed of *Endive* for a fair supply. Sow *Peas*, the Wrinkled Marrow and Early Frame may be employed. *Lettuce* and other salad plants should, as previously directed, be sown at short intervals on a spot where they are to remain; the time between each sowing may, however, be decreased for the next two or three times, as during the hot weather of July and August these crops, particularly on dry soil, continue but a short time in perfection. The south border, where the early Peas have grown, may have a light dressing with manure, and should be well broken with the spade while being dug preparatory to receive the late crop of *Dwarf Kidney Beans*, for which draw drills 2 feet apart, and before planting water the drills by passing the spout of the waterpot along them. Attend to recently-transplanted crops, as Cucumbers on ridges, Celery, Tomatoes, Herbs, Strawberries that have been turned out of pots, and Vegetable Marrows, and give them liberal supplies of water alternately with liquid manure.

FRUIT GARDEN.

Lay-in the shoots of Apricots and other wall trees while the wood is pliable. There is a fine development of wood on espalier trees; advantage may be taken of the circumstance to lay-in an extra quantity with a view to the ultimate removal of old unsightly wood. Continue to destroy and stop superfluous shoots on the trained Pear trees; many shoots may be twisted or broken short about half way up. Look over Peach trees frequently. Pinch the points out of the young shoots of Fig trees when they have made five or six joints; by this means you will secure stronger and more fruitful wood for the next crop than if allowed to grow. Stop and tie-in Vines. Thin Raspberry suckers. Give good washings with the engine whenever insects appear.

FLOWER GARDEN.

A little pains taken with walks at this season will be amply repaid by the air of comfort and pleasure which well-kept walks give to any place. The edgings, whether of grass, Box, or other evergreen, should be repaired or clipped. This may appear to some to be an unseasonable time for such work, but where it can be done the effect produced amply compensates for the trouble, and in flower gardens effect is everything. This is the best time of all to clip evergreen hedges or edgings, as they have time to make and mature their new growth, whilst the season is far enough advanced to prevent their growing very materially out of shape. Watch the different annuals as they come into flower, and mark those varieties whose superior habit of growth, size of flower, or brilliancy of colour, makes it desirable to procure seed, and destroy inferior ones as soon as they expand their first flower. Ranunculuses, though rather late this season, will in many instances be in bloom, according to the locality. The awning should be put over them, and should the weather set in very hot, the paths may be watered. We need not impress on the amateur the necessity of keeping the beds free from weeds and destroying the insects which may harbour about them. Tulips in the offset and exposed beds will require taking up at an earlier period than those which have been covered. As soon as the foliage begins to change they should be taken up, choosing a dry day for the operation. They should be stowed away in some dry, airy place where mice cannot have access to them, allowing the fibres and husk or skin to remain till the bulb is thoroughly dry. Auricula and Polyanthus seed must be attended to; as soon as the capsules turn the least brown they should be gathered. Take care that the pods of Pinks do not burst; those which have had ligatures round them will require easing and retying. The longest grass may be piped, the plants will then put out an abundant stock of late cuttings.

GREENHOUSE AND CONSERVATORY.

Look to the plants out of doors in showery weather, to see that none of the stock is suffering from imperfect drainage, and throw screens over delicate plants during heavy rains, especially plants which have been recently potted. The surplus stock should be looked over, and a due proportion selected for potting, a reserve always being kept to make up deficiencies in the beds. A cold pit is best adapted for nursing those plants intended for the embellishment of the conservatory. Cut down Pelargoniums after blooming, and employ the branches for cuttings. The old stools, after a few weeks' rest, may be turned out of their pots, the soil shaken from them, and placed in a pot of reduced dimensions. By pinching off the blossom-buds of the young Pelargoniums, a late bloom may be secured. The Perpetual and Bourbon Roses which have been forced, should be placed in a cool situation with the view of repressing further activity. After a season of rest the soil should be shaken from them, and all decayed roots removed, after which they should be repotted in fresh rich earth, removed to the protection of a cold pit, and there plunged. A few plants of the dwarf Orange should be placed in a shady situation as soon as the young wood is sufficiently ripened; an early winter bloom may thus be obtained. Balsams and tender annuals for succession should at once be shifted. Remove to houses with a north aspect, or under the shade of a north wall, any plants whose period of blooming it may be desirable to prolong. Place in their blooming pots the principal stock of Chrysanthemums, using for potting a rather heavy loam with a portion of well-decayed cowdung. Seedling Chinese Primroses, Cinerarias, and other plants required to furnish the winter supply of bloom should now be forwarded by shifting into 60-sized pots. Keep them in a cold frame where a slight shade can be given them in hot weather, or, what is better, turn the frame to the north. The Heaths and New Holland plants that are now standing in houses, and are making their growth, should be duly encouraged by frequent syringings, waterings, and liberal airings. The growth of Boronias should be duly encouraged; well-shaped plants should be selected in due time, liberal shifts given, and a situation selected under protection of some kind, such as frames or pits facing the north, otherwise they should be shaded in the warmest part of the day. The luxuriant shoots must be kept pinched back in proper time in order to cause density and sturdiness of growth. Never, by any means, should any of this family be placed in a cold draught, or they will certainly wear a rusty brown or spotted unhealthy appearance. Clean, healthy pots should be always chosen, and they must be particularly well drained; a good portion of charcoal should be used with the drainage, then cover it with rough charcoal. The soil should be a good fibrous heath soil, as gritty as it can possibly be, selected in its natural state from a well-drained situation, in suitable weather, and well harvested, and continued in a healthy condition until required for use; it should then be broken up roughly, getting rid of any loose or close adhesive soil, adding a liberal portion of clean, sharp, gritty sand, grit, and broken rubbly stones or flints. When the plants are making growth, and the pots are full of roots, if it is not intended to repot or shift them, applications of well-prepared clear manure water will improve their health and vigour, but at no other times should liquid manure be applied to this family of plants.

STOVE.

As light has now reached the maximum point, and solar heat nearly so, fires may be dispensed with in the Orchid houses and stoves, except, perhaps, on the evenings of wet days, when a little fire heat will be necessary to allow for admitting air early in the morning. As plants at this season are making way fast, the above conditions must be taken advantage of to supply air in liberal quantities, which, in conjunction with light, will help to arrest the rapid growth of those plants whose disposition to bloom depends mainly on a pretty free exposure of both at the same time. There are but few plants that will not be benefited by inducing a sturdy habit, and consequently establishing the beginning of well-ripened wood. Propagate Luculia gratissima by cuttings. Gesnera zebrina may still be potted for late blooming. The Cacti may be removed from the stove, shifted, placed in a close pit, and supplied liberally with moisture. Balsams and tender annuals

for succession should at once be shifted. Gesneras, Achimenes, and Begonias, for the same purpose should also be repotted progressively. Regulate Orchids, so that those requiring most humidity or air may occupy those suitable positions. Avoid watering plants which are not in activity. Look well through the stands of Stanhopeas and Oncidiums now about blooming, to see that no snails are concealed.—W. Keane.

DOINGS OF THE LAST WEEK.

KITCHEN GARDEN.

There could have been no better weather for mere growth, and therefore all vegetables to be used for their leaves advanced fast; but Peas and Beans go on slowly, the blooms refusing to set, and the embryo pods to swell out of doors. Where the plants were dry above, as in an orchard house, they did remarkably well.

We proceeded with thinning various crops, such as Onions, for the heavy rains had made the work more easy. We also nipped the centre out of some of the strongest winter Onions, to cause the bulb to swell more freely. We sowed Onions for salads; this we generally do every month up to September. Sowed also more Coleworts and Cauliflower. We cut a fine specimen of late Broccoli on the 7th inst., the last for this season, and not to be regretted now, as the earliest Cauliflower is coming in freely; it is all the stronger and more compact from having received a free soaking of strong sewage before the heavy rains came on. Our Cabbages seemed at one time standing still, as we planted rather late, our stronger plants the year before being much injured in winter. This season we have not lost a plant, nor has a plant run to bloom. We have some large sorts for variety, but our earliest was Veitch's Matchless, and then Little Pixie, both taking little room and hearting well. One soaking of sewage did wonders with them. We know of nothing that has a greater effect on the growth of Cabbages and Cauliflowers than rather strong house sewage.

Time may often be gained where ground, as with us, is scarce, by pricking-out all winter stuff some 3 or 4 inches apart; the plants become stouter than when standing thickly in a seed bed. If we had plenty of ground we should plant out at once.

Potatoes Frosted.—Our most forward Potatoes out of doors on sloping banks facing the south were cut down by the frost. Extra care might have prevented this, but little could be done when all above ground was thoroughly blackened. Ere long the fresh tops appeared again, but we have frequently noticed that after such a frost the early tubering is retarded from a fortnight to three weeks; also, that very frequently the tubers are not individually so fine. This we attribute to the multiplication of the shoots that takes place after the first shoots are destroyed by frost. When growing Potatoes in pots and in beds under glass, we have long satisfied ourselves that one or two stout shoots from a set gave a better yield than a number of shoots. Hence, if a moderate-sized Potato were used, we found it true economy to rub or cut out all the buds or eyes except one or two. If we could have spared the time we would have gone over these Potatoes on the bank, and thinned out the shoots as they broke from the old stem after the frost. We can only recollect of two instances in which we did this, and there was an interval of some years between them. In a given space of thinned and unthinned shoots the produce in the first case was one-sixth more in weight, and the quality was better. In the second case the weight was rather in favour of those left to themselves, but the quality was very inferior, a great many being so small that they could not be used for table, whilst the crop from those where the fresh shoots were thinned was of good and more uniform quality, the tubers being more equal in size, and all ripening about the same time. It would be desirable if some of our readers would state their experience of having only one or two shoots to a set of Potatoes, or when such was cut down by frost, thinning out greatly the small shoots that would break, and doing this early, when 1 or 2 inches in length, as regards not so much the mere weight as the even serviceable quality of the tubers.

FRUIT GARDEN.

We had some fine lines of *Strawberries* in pots from which we expected great results, and what has been left of them has not disappointed us; but we were much chagrined to find, that for two consecutive nights the half-swelled fruit, quite green, was either cut off and lay on pots or shelves, or many not cut had the little seeds nipped out, and the berry, therefore, was of no use afterwards. In both cases the object of plunder seemed to be the little seeds, as the berries were not touched. We tried the usual remedies—traps, various kinds of poison, &c., and though the poison told a little, we still found the devastation going on, and were obliged to move the plants elsewhere, and, almost against rules, domicile a cat in one house for a part of a night, and in another house where there were Strawberries for the other part of the night. The pots of Strawberries have been let alone since, and the cat has been the chief cause. It is said that slitting a cat's ears—that is, nipping a triangular piece out of the tip of each ear, which seems to give little trouble to the cat when young—will be a preventive against game-hunting, as the slit draws into the ear the damp and dews from the grass, and this the cat abominates. We think there is some truth in the statement, and should be glad to meet with corroborative proof, as some game authorities say that it is all nonsense. Be this as it may, we can safely affirm that where the cat is banished from a garden the gardener is deprived of one of his best and most efficient friends. Years ago we noticed, in going round some gardens, fruit untouched, and hardly a bird to be seen. The secret was half a dozen well-fed cats, which, being fed regularly, seldom went beyond the garden, but hardly allowed a bird, mouse, or rat to be seen.

With regard to Strawberries, we wish our readers would assist us. Dr. Hogg has been with us good and flourishing in pots, but our plants out of doors are only about half the number they were last season. Having good plants in pots we can secure plants for forcing, but we should be glad to know more of its relative hardiness out of doors, as that is a matter of importance as respects this elegant, fine-flavoured fruit. Were we assured of its equal hardiness few Strawberries would beat it. Our best and heaviest returns have been from what are called 40-sized pots—a size between 5-inch and 6-inch pots—and they have pleased us in size, colour, and flavour. It will, however, be a great drawback if it do not withstand our damp and frosty winters out of doors. Some rows that yielded fine fruit out of doors last year look very badly this season, nearly half of the plants being gone; and we should only be glad to learn that that was more owing to some fault in our treatment than to the rather tender nature of the variety. As a forcer it sets so freely as to require a considerable amount of thinning so as to get fine fruit, and we find its appearance and flavour are much appreciated.

We have some large fruit of Marguerite coming on—the first season we have forced it, but, though fine-looking, we do not consider it equal in quality to Dr. Hogg. Between these and fine fruit of Keens' Seedling, a first-rate sort for more than forty years, we have relied for size on an enlarged Keens', the Empress Eugénie, and the flavour is very fair when the fruit is gathered dry and the soil rather dry. This was introduced to our notice by Mr. Dewsbury some years ago, when gardener at Stockwood. We recorded our opinion of his Strawberries at the time. A visitor lately asked if we could still endorse the high opinion we expressed of these Strawberries for that year, and we answered, Undoubtedly. Our Strawberry pots that morning happened to be very fair, but they were not equal to those we described at Stockwood at the time. In fact, we had never before nor have we since seen such crops in 5 and 6-inch pots, especially of Empress Eugénie. We hope that Mr. Dewsbury will be as successful at Cobham Hall in Kent (Lord Darnley's). If, as the gentleman told us, it is a benefit to contend against obstacles, we hold it to be a greater benefit to see successes gained which you never have reached. In our time we have grown British Queen Strawberry in pots so as to give pleasure to all concerned, but there are two friends who in cultivating this variety we never could equal—Mr. Bogue and Mr. Judd, both well known to the readers of the Journal. There must be some little secret which enables them to grow this variety so well; and when well grown what can beat it? We cannot satisfy ourselves with it, and therefore grow less of it.

Last year was, perhaps, the best year we have ever had as respects quantity of fruit from plants in pots, and the worst year for produce out of doors. We assigned as the reason for a thin crop, that wet and frost together had destroyed the flower-buds in embryo. Some visitors said we must have been getting a barren lot of plants. To show we were so far right, the same plants that were deficient in bloom last year, are loaded this season, and show every sign of producing heavily. One thing, however, we omitted to state, and it was that from press of other matters the Strawberry plants were cleaned and mulched much later than usual, and that, we believe, gave

the frost extra power over the more exposed buds. When rather rough material is used as mulching in the autumn, and brought close to the collars of the plants, much security is given against severe frosts.

The appearance of tender fruits out of doors shows the importance in our fickle climate of protecting them in a simple mode with glass, but on this we cannot enter. Even such fruits as Apricots and Peaches will stand a considerable degree of frost if the air is dry and still. In confirmation of this we may state that Peaches, Nectarines, Cherries, Plums, &c., in *orchard-houses* have set too thickly, and must be thinned very much, except at least the earliest Cherries which are ripening. Such trees grown in pots, even if the pots, as ours are, should be mostly sunk, require frequent examination to see that the moisture is sufficient. In such cases there is no test so good as a gardener's finger grubbing down into the soil; the next best would be a neat pointed stick. We lately showed that one cause of ruin to plants in pots was repotting them with the ball and roots in a dry state. This surface-sprinkling is another cause of failure to plants in general, and to fruit trees in pots in particular. Some time ago we were asked by a keen amateur to look at some fruit trees in pots in a small house, but ventilate and water as he would, though the trees were fair the fruit when young would keep dropping until scarcely any were left. As the bottoms of the pots were merely set in the ground, from one-half to two-thirds of the upper part of the pot being exposed, a stroke with our walking-stick against the pots told us the cause in an instant. "Too dry! Impossible! Just see how wet they are. Watered them this morning myself." Well, the turf and soil were moist enough to the depth of 1½ inch. To prove our case, we went on our knees, and with our knife made an opening and dug up the lower soil as dry as dust. The rest of the crop was saved by two or three waterings, not a great one, until every root and bit of soil was moistened.

ORNAMENTAL GARDENING.

We did much potting, fresh arranging, and propagating. Or chief work would have been planting-out, and we have about half done, reserving Coleus for a fortnight later, but the heavy rains have forced us to do the work in snatches. Only one fine day we had, and we put in a lot of plants, almost filling the beds at once. On this, the 8th, as on two previous days, we could only do a little in the forenoon; the ground was too wet in the morning, and in the afternoon there was nothing but shed work for the men. In very light ground more might have been done, but, in our soil, experience teaches us that we had better wait, as when the ground is at all poached the plants rarely flourish. It is just like sowing in muddy soil. We mention this because many are uneasy that they are so behind. We know our plants are growing, and we can soon get them out if the weather changes. We dislike, too, having grass round beds trampled when wet, or discoloured with wet mud on it. We counsel to wait a little longer in preference to turning the plants out when the ground is soaked. We find even good-sized plants do best when the earth can be turned round the roots in a nice, friable, dryish, warm condition. When not too wet, mowing could be proceeded with, and this was all the more necessary, as the rains made the grass grow too quickly for our machines. This is especially the case with the lawn we fresh-laid last season, as to make it all even and level we had to use richer soil than we liked for the purpose.—R. F.

TO CORRESPONDENTS.

*** We request that no one will write privately to any of the correspondents of the "Journal of Horticulture, Cottage Gardener, and Country Gentleman." By so doing they are subjected to unjustifiable trouble and expense. All communications should therefore be addressed *solely to The Editors of the Journal of Horticulture, &c.*, 171, *Fleet Street, London, E.C.*

MOWING MACHINE (*Mower*).—We never knew one unsatisfactory if properly managed, so we cannot recommend any one specially.

SEEDLING PANSIES (*C. S. Hillside*).—They are very unique and good, both in colour and form. Send some specimens to the Floral Committee of the Royal Horticultural Society.

FERNS UNDER YELLOW GLASS (*W. A.*).—As the glass is not entirely yellow, but only with a diamond pattern of that colour on it, we think that the Ferns will thrive under it. At all events try them, and send us a report of the result. We found our opinion upon the results of Mr. Hunt's experiments, who found that under yellow glass and blue glass plants were not blanched, but they were under red glass and green glass.

JAPANESE HONEYSUCKLE (*Robeston*).—Your specimen is this Honeysuckle, Lonicera brachypoda *v.* aureo-reticulata. We give the botanical name fully because another correspondent says he cannot find it in botanical books. It is the Golden-netted Honeysuckle of some authors. Train it upon a trellis; it requires no pruning.

ARUMS—LILIES OF THE VALLEY—PRIMULAS AFTER FLOWERING (*M. H.*).—The Arums should be kept in the greenhouse, and be watered as may be needful. They will require less water than when growing and flowering. In autumn they will begin to grow freely, and should then be potted as may be necessary, and watered more freely. They may be placed out of doors now, and housed in September. Plant out the Lily of the Valley in rich light soil, at a foot apart every way, selecting a border shaded from the midday sun, but not overhung by trees. The plants must have liberal supplies of water in dry weather. In the course of a year or two they will be fit for forcing again, or they will flower out of doors. They will not be satisfactory in pots next season. As regards the Primulas, you may remove the old flowers, stems, and leaves, and set the plants in a sheltered slightly shaded position, and they will flower again in autumn, but not so well as young plants.

PÆONIA MOUTAN PROPAGATION (*H.*).—It is increased by division and by cuttings of the young shoots in spring. Take off the latter close to the stem, insert them in sandy soil, place them in a hotbed, and keep them close and shaded from bright sun. It is also increased by layers of both the old and young wood, ringing them—i.e., removing a small ring of bark all round the shoot or branch, and if this be done between every joint, and the shoot be layered in the soil, every bud will form a plant. There are upwards of fifty good distinct varieties, and about a dozen of them have very fine double flowers. We should be glad if any of our correspondents would favour us with a select list of the varieties of this neglected but fine hardy flowering shrub.

TRAINING MINIATURE FRUIT TREES (*J. J.*).—From the remarks in your letter you seem to understand the treatment that the trees require. Pinch the side shoots as you propose. The length at which the leading shoot requires to be stopped depends much on the sort; some form side branches more freely than others. We generally pinch the leading shoot twice in the season when the tree is in full growth. Apple, Pear, and Plum trees require similar treatment in this respect. We do not advise you to let the young shoots grow until autumn, and then cut them back. Pinch back the shoots now.

TREES IN ORCHARD HOUSE (*Amateur*).—No one can tell you how many trees should be allowed to mature their fruit in your orchard house unless he knew the size of them. You may place the trees as close together as you please when they are dormant; but if they are crowded when making their growth, weakly shoots and but few fruit-buds will be the result. Supposing an orchard house to contain seventy-five trees when the fruit is ripening-off, a hundred may be admitted into the same house until the first week of June, when twenty-five of them should be placed out of doors to ripen the fruit.

FRUIT TREE CULTURE (*H. Hall*).—The Pear and Apple trees on your walls are probably trained on what gardeners call the horizontal system; if so, the young side shoots ought to be pinched back to three or four leaves. If the Cherry and Plum trees are trained on the fan system, then some of the young wood will require to be laid-in to the wall, cutting back all young wood not required for this purpose. Thompson's "Gardener's Assistant" is the best practical work on fruit culture. Pearson on the "Orchard House" will suit you.

CUCUMBER PIT (*A Disappointed Amateur*).—You do not say a word about the ventilation, and therefore we presume that it is efficient. You say you can have what heat you require: want of heat, therefore, cannot be the reason of the Melons not setting and the Cucumbers not swelling. Your place is heated by three flues—two flows along the sides, a return in the middle, and a tank over the latter, supplied with water and covered with perforated material; the space between the flues, over them, and over the tank, covered with open rubble to let the heat up into the soil. The water is taken out of the tank, as there might be too much damp, and still no improvement. We see at once that all the heat in the atmosphere must come through the rubble and the bed of earth. Our opinion, then, is that to get enough of top heat you have a great deal too much bottom heat, and that, though not hurting mere growth, hurts the valuable part—the young fruit. We think that with one flue shut in under the bed, and the other left exposed for top heat, we should have no difficulty with such a pit. We prefer the rubble under the earth, however, to be first covered with a layer of fine clean gravel. Under present circumstances, as the tank is there, we should fix a 3-inch pipe over it at every 4 feet, the pipe rising 2 inches above the soil, and furnished with a plug, so as to let moist heat into the atmosphere of the place at pleasure. On each side, between the tank and flue, we should fix similar or 4-inch pipes upright through the soil, the lower end fixed, but left open among the rubble. This would give you dry heat, and if too dry pour water down among the stones. You would not need so much fire as now. Extra bottom heat we think the chief cause of failure.

COLOUR OF TRICOLOR GERANIUMS (*A. P.*).—You may use weak liquid manure for your Tricolors planted in beds, to increase the size and brilliancy of the leaves; but one of the simplest and best plans is to cover the beds with from 1 to 2 inches of riddled rotten dung, then have a bright sun, and the foliage will be bright.

SHOW PELARGONIUMS FOR BEDDING-OUT (*E. S.*).—Several of the hardier large-flowering or Show Pelargoniums will do when bedded-out, but they do not last long enough, and require to be thoroughly protected from wind. It is some time since we have seen any tried, but the best were of the Fancy tribe, and if we remember right, Ellen Beck, Delicatum, and a few others succeeded admirably. We should be glad if any of our correspondents can name any varieties of this section of Pelargoniums which have succeeded in their hands.

ROSE-BUDS DISTORTED (*S. V. A.*).—The buds have apparently suffered from orange rust or fungus, most probably from having been too dry at the roots. Dust with sulphur, and water liberally, giving a little guano as a top-dressing, and let the plants have plenty of air without draughts.

LAMARQUE ROSES GREEN-CENTRED (*Lamarque*).—The reason the buds have come with green eyes is most probably from a check after too vigorous growth. Cold weather coming after a forcing spring is apt to cause it. The plant will most probably do well after another year. Thin out any weak growth, but do not prune nor shorten strong wood this autumn. If Marechal Niel has succeeded well in the same aspect, we have little doubt Lamarque will as well.

MAHALEB STOCK (*Centurion*).—It is quite common, and Cherries worked upon it may be had at any nursery in England. Brent's book may be had at our office if twenty-six postage stamps are enclosed with your address. Any bookseller will obtain the other for you.

Vine Shoots Gangrened (*Q. Q.*).—If roots are outside cover the surface over them with fermenting dung, and keep the border mulched throughout the summer. If the roots are inside the house water them thoroughly once a-week. "Surface waterings" are worse than useless.

Vines in Greenhouse Mildewed (*R. H.*).—Dust the affected parts with flowers of sulphur whenever it appears. Admit air freely, affording a gentle fire heat so as to allow of free air-giving, and if the pipes be painted with 2 ozs. of soft soap to half a gallon of water, and that brought to the consistency of paint with flowers of sulphur, fumes not injurious to the Vines but unfavourable to the mildew will be produced. If the case is a bad one you may, in addition, give the border a good watering with 1 oz. of guano and half an ounce of salt dissolved in each gallon of water at a temperature of 70°.

Royal Ascot Grape (*W.*).—We cannot tell you if yours is the right sort unless we see some of the berries when ripe.

Creeping Plant (*H. L. D.*).—It is a native plant, evidently a favourite, for it has many local names—Creeping Loosestrife, Herb-twopence, Twopenny-grass, Creeping Jenny, Moneywort, Lysimachia. It is known to botanists as Lysimachia Nummularia, and the following notice of it is in our "Wild Flowers of Great Britain." "*Lysimachos* is a Greek word signifying a termination of contention, and one of the English names of the plant, Loosestrife, translates it literally. *Nummularia* is a Latin word, meaning belonging to money, and has reference to the somewhat flat, orbicular shape of the leaves. Its other English names, Moneywort, Twopenny-grass, and Herb-twopence, have a similar reference. 'I have named it Herb-twopence,' says Dr. W. Turner, writing in 1568; 'it runneth along by the ground with small branches, whereon grew small rounde leaves, like pennies in couples, one against another, whereupon it hath the name.' It is not often that we have such a clear tracing of a plant's name and of its bestower; but the same authority, our earliest English herbalist, proceeds to give us another derivation, which our readers will not consider irrelative. 'It is good,' adds Dr. Turner, 'for the cough that younge childer have, called in right English The kindt-cough, for kindt is a chylde in Duche: and in Frenche-English The Ching-cough.' It was considered such a universal medicine in some parts of Europe that it was named Centimorbia, as if a remedy against a hundred diseases. It has no such reputation now; and we will only add, from the herbalist already quoted, 'an apothecary of Germany tolde me that if an horse do halt, because he is stricken in the quick, if the nayle be plucked out and the juyce of the herbe, or the herbe chewed in a man's mouthe, be put into the hole, will soner then a man beleve hele the horse hove, so that he shall not be hindered of his journeye thereby.' In the neighbourhood of London the plant is popularly called Creeping Jenny."

Propagating House (*Horti*).—We make all sorts of contrivances do for propagating houses; in fact, we have nothing of the sort just now, though turning out many thousands of young plants every year. Any house, pit, or frame we make suit our purpose. If to-morrow we were to put up one that would cost little and yet be convenient and serviceable, we would select a spot for a span roof from 10 to 12 feet wide. We would have a wall all round 3 feet in height, except where the doorways would be. We would have a bed on each side, and a pathway of 3 feet down the middle. The walls outside being 3 feet, we would make the walls of the pathways from 30 to 33 inches in height. In each of these beds at the sides we would place two 3-inch pipes, or 4-inch pipes, 2 inches or so above a concreted bottom. Around and among these pipes we would put as openly as possible clinkers and brickbats, and cover them with 6 inches of the same, with an inch or so of fine washed gravel over them: there would be the bottom heat. Above that you could have what you liked for plunging the pots in, and room for the cuttings to grow. For tender plants, or to strike in the first stage as soon as possible, we would use moveable sashes, resting and supporting them inside the outer wall and on the plinth on the top of the wall in the passage; and by using moveable wooden divisions you could give a distinct treatment to the cuttings under any particular sash. Keeping this in view is the reason why we wish the inside walls of the beds next the passage to be 6 inches lower than the outside walls. For top heat we would have two pipes all round the house, or wherever you found it most convenient. There would be no side glass. The roof on each side would be fixed and go from the wall-plates to a double ridge-board, leaving an opening of 9 inches for air-boards, covered with a cowl outside to keep wet out. These ridgeboards may be 7 or 8 feet in height from the floor level. Such a house, with beds at the sides, with earth instead of plunging material, would do admirably for Cucumbers; but if you want a fine-looking house for them you should have at least 2 feet of upright glass on the side walls, and raise the height at the ridge to at least 10 feet. The side lights could be made to move a little, and but little front air is required. The same elegance might be obtained in a propagating house, and the additional room above might be used for shelves. In both propagating houses and Cucumber houses the top and bottom heat should be independent of each other. We have merely mentioned what we know will succeed well in the simplest way, and what will be the best paying. As to the outlay, we should prefer a more elegant house if we could get it. By a little scheming we do next to wonders with Cucumbers in a small lean-to 6-feet-wide pit, but we know we could do better still if, instead of our flat narrow lean-to roof, we had a span roof, and from 4 to 6 feet higher at the apex. We made this common-sized pit into a little house by digging out a passage at the back 2 feet wide, and using a brick-on-bed wall to keep the bed in front from the passage. We have a little door from which we drop ourselves into this small passage. Altogether the affair is more fitted for men somewhat dwarf than those of the giant order, but as a simple propagating pit we could desire nothing better. The bed in front could be at once—and in truth, when not fully occupied by Cucumbers is—turned into a propagating place. When necessary we have some little frames that just go across. This place is heated by two 3-inch pipes among rubble beneath, and two at the front above the bed for top heat, but there is scarcely enough of top heat; three pipes would have been better—two flows and a return. We once used a low-roofed lean-to house 11 feet wide as a propagating house, and with good results. The pipes went round the house—three 4-inch pipes. We allowed the ends and the back to remain for top heat; we shut the front pipes into a chamber, and there in a bed 3 feet wide plants did strike remarkably well covered with little sashes, which saved all trouble in drying by merely reversing them every morning. We had a pathway 2½ feet wide, and the back part of the house we made into a stage reaching near the top of the wall, with narrow shelves for receiving struck cuttings, and cuttings potted off, just as soon as they began to root. Such a plan was a very simple one, and we question if any other could be more economical. Meanwhile we repeat what we said at the commencement, that were we to have a useful and at the same time economical house, we would have a low span roof with no side glass, a bed on each side, and a path along the middle. We would use glass over half of the beds or pits, and shade when necessary, leaving the main roof open and exposed. The cheapest and yet most useful mode that you can devise for a Melon or a Cucumber house will also answer well for a propagating house. All that is wanted is something to shade and cover the cuttings in the bed when necessary.

Elevated Boiler (*W. F.*).—We do not know any boiler that you can well place higher than the saddle-back, unless you raise the pipes in proportion. Of course you could have the boiler altogether above the ground level, and thus avoid the water in the stokehole, but then you must take your pipes on a level with the flow and return, or raise them proportionally. Such stokeholes should be built with brick and cement. We have known cases where lead had to be used, to form, as it were, a dry tank.

Grubs Destroying Edging Plants (*B.*).—The grubs that come from under the turf, and destroy the Cerastium, &c., are the larvæ of the Crane-fly or Daddy-longlegs, Tipula oleracea. Mr. Curtis observes, that it is said that lime-water will not kill them, and suggests that if quicklime were scattered on the ground at night, it would destroy them when they come to the surface to feed; and all the gnats that are found on the walls, palings, ground, or elsewhere, should be killed, especially the female, which would prevent any eggs being deposited in the ground. A mixture of lime and gas-water, distributed by a watering-pot over grass, has completely exterminated the larvæ where they had been exceedingly destructive; and by sweeping the grass with a bag-net, like an angler's landing-net, only covered with canvas, immense numbers of the gnats might be taken and destroyed.

Insects (*A. Z.*).—Your Apple buds have been attacked by the caterpillars of a small moth, most probably Tortrix ocellana, or perhaps Laverna atra. Hand-picking is the only remedy. The black colour of the shoots must be due to smoke and soot, which would bring the trees into a state of ill-health, making them very attractive to insects. (*C. A. J.*).—As well as we can determine from the shrivelled-up condition of the very minute insects sent, they are the just-hatched young of a species of Aphis, and would be easily killed by fumigation. The shrivelled-up and brown condition of your Cherry and Ribes leaves is doubtless due to atmospheric action upon the leaves of trees brought by last year's drought into an unhealthy condition.—J. O. W.

Names of Plants (*T. G.*).—Ribes speciosum, Showy-flowered Gooseberry. It is called in some botanical works Ribes fuchsioides, Fuchsia-flowered Gooseberry. (*Alderford*).—It is Bignonia jasminoides. It is a native of Moreton Bay, and was introduced in 1830. (*H. S.*).—1, Limnanthes Douglasii; 2, Iberis Pruiti; 3, Saxifraga hypnoides var. (*W. H. S.*).—Cordyline Eschscholtziana of Martius, often called in gardens Dracæna brasiliensis. (*A. K.*).—1, Campanula Rapunculus; 4, Geranium pusillum; 5, Vicia tetrasperma; 6, Arenaria balearica.

POULTRY, BEE, AND PIGEON CHRONICLE.

WHICH IS THE BEST BREED?—No. 2.

Very few people at the first glance can form any conception of the many circumstances which have to be taken into account before the question we are now considering can be answered. I had begun last week a paper on some of these, but I have since read a remarkable address given in February of this year to the New York State Poultry Society, by the Hon. J. Stanton Gould, which deals so ably with this very matter, that I have put some of my own notes in the fire, and insert extracts from his address instead. I ought to say that the speaker is well known in America as a stock-breeder, while, curiously enough, he professes to know very little about poultry; hence he considers the matter solely from a stock-breeder's point of view, which, indeed, for our present purpose is the very best which can be adopted.

Mr. Gould naturally takes up first the point of laying. "Some men," he says, "who have kept a considerable number of different breeds have, after careful trial for several years, concluded that the Hamburghs were the best and most profitable of all breeds. After reading through a vast mass of statements from reliable men, the largest number of eggs laid in any one year that I have found was 240 by Hamburgh hens. I have been told again and again of hens that would lay an egg every day in the year, but when I have attempted to verify such statements I have always failed, and until you actually have reliable proof that any hen has laid more than 240 eggs, you may take that for the maximum number; but I should mislead you if I should fail to tell you that these Hamburgh eggs were very small; many of them weighed no more than an ounce, not one of them exceeded 2 ozs.

"Another man," continues Mr. Gould, "had some Brahmas that averaged 170 eggs in a year [I wish I had them.—L. W.], none of which weighed less than 2¼ ozs., and many weighed 4½ ozs. Now if we take mere numbers as our guide, the Hamburghs certainly beat the Brahmas 141 per cent.; but if we take weight as the basis of our calculation, the Brahmas have beaten the Hamburghs 142 per cent. This last, however, is the true basis of calculation. It is not the number of eggs a man eats, but the amount of nutriment they contain, that forms their measure of value for him. Still, we have not yet found out whether Hamburghs or Brahmas are the more profitable breed to keep. You have still to find out how much it costs to produce the 240 Hamburgh eggs and the 170 Brahma eggs. The Brahmas gave 142 per cent. more nutriment than the Hamburghs, and therefore you say they are better for you to keep. Suppose now that we discover that the food of the Brahmas costs 150 per cent. more than the food of the Hamburghs, we should be compelled to change our opinion again, and come back to the conclusion that the latter were the most profitable. We have some experiments on record [on this point], but unfortunately they are contradictory—some of them are in favour of the Brahmas and some

of the Hamburghs. But even if they all pointed to the same result they would be inconclusive; for suppose a perfectly satisfactory series of experiments made in Albany shows that the Hamburghs gave more nutritive matter in a year relative to the food they consumed, such would be perfectly conclusive here in Albany, but would be anything but conclusive in Maine or Minnesota, where the soil and climate and quality of food were entirely different.

"I have said," be then goes on, "that such an experiment would be conclusive for Albany, but it would tell us nothing about the production of meat. It may be a fact that Hamburghs in Albany will give a greater return in eggs for the food consumed than the Brahmas, but it by no means follows they will give the greatest amount of meat; it is very likely it will be exactly the reverse. Now if this should turn out to be so, we should be obliged to strike a balance between the relative value of meat on the one hand and eggs on the other.

"And suppose that this last balance is struck, we are not even then sure that we know which is the most profitable breed. Suppose we ascertain that the Black Spanish lays the largest eggs, which is actually the case, and that they will lay as great a weight for a given amount of food, as is probably the case—still the Brahmas will be a more profitable breed for us to keep than the Black Spanish; for the latter lay their eggs in summer when they are cheapest, and the Brahmas lay liberally in winter when eggs are the highest in price. It may, then, turn out that from this circumstance some breed will be more profitable to keep than another, though that other really does give more eggs and more meat for a given amount of food.

"Even now, when we have found out as we suppose what is really the most profitable breed for us, it may turn out that we had better keep some other; for it may not be possible for us to keep that profitable breed at all. Suppose you find that the Game is, all things considered, the best fowl, giving the most eggs and meat for a given amount of food, and producing them at the season when they can be sold at the highest prices; now, if you are so situated that your fowls must be kept within a limited space, you cannot keep these best and most profitable fowls at all, for one of the first conditions of success with the Game is a wide run, all their good qualities being marred by confinement; but you may keep Brahmas or Houdans in your limited space, for they are not much inclined to ramble."

I have drawn so freely on Mr. Gould that I have left no room for remarks of my own; but his are so masterly in their treatment of the subject that I do not regret it, and must leave the rest of what I have to say for a future paper. Some may think no more is needed, but that after this lucid exposition of the elements of the problem they can answer for themselves the question we have proposed as well as I can do it for them. Many doubtless will do so. All I have to say is, so much the better.—L. Wright.

DORCHESTER SHOW UNDER TWO ASPECTS—IN RAIN AND IN SUNSHINE.

No. 1.—In Heavy Rain.

The Bath and West of England Show is the prettiest show during the whole year. I use the word prettiest advisedly. Others, as the Royal, may be larger and grander, but then it does not cater for all tastes—as, for instance, no poultry and Pigeons are to be seen there. Again, winter shows of poultry are, of course, the best; but a tent show, grass below and canvas and flags above, is much prettier doubtless. Then the Council of the Bath and West of England seem always to choose pretty places for their exhibition. I saw it at Wells with the quaint cathedral lying below, twice at clean farmer-loving Salisbury, once on Durdham Down, Clifton, two years ago at pretty Taunton, and now at historic and antiquarian Dorchester. I said the Council cater for all tastes, I scarcely know whether more for man's than for woman's—Honiton lace, textile arts, flowers, pet ponies, light carriages for the latter; for the former, horses, cattle, machinery; and for both an infinite number of things useful and interesting. Then, somehow, west of England has its special advantages—softer air, antique unmanufacturing towns, and richer foliage. The peripatetic nature of the Bath and West of England is a mercy likewise to all who write about it, for though much must be similar within the tents, yet outside each time there is a difference—a benefit to us scribes.

"The rain—it raineth every day," is, I see, the commencement of a leader in a London daily paper, and no wonder. Wednesday night, glass going down, but surely no more rain—it cannot be. Thursday, my only possible day for Dorchester: rain undoubted, but it cannot continue, only "the pride of the morning." At the Bath and West of England Show it never rains. I have hidden under the tents from the blazing sun and there been stifled, but I have never been rained on; besides, a ride in a railway, especially if a long one, is much pleasanter in rain than in too much heat. There are happy times when we each can say, "My bosom's lord sits lightly on his throne," and we will not anticipate anything even in the least degree uncomfortable. Such was my feeling on Thursday morning last. A wet walk to the station: never mind, I had the best of company—two waterproof-covered merry little girls, who declared "they liked nothing so much as a walk in the rain." Once in my carriage, before me sat a rosy-faced, blue-eyed, middle-aged man, a gentleman farmer no doubt, and, as he proved, a Wiltshire farmer—just a fit companion to a Wiltshire rector; and capital company he was, for he was going to the Show of course.

The rain—well, heavy rather; but never mind, it looks lighter. We shall reach Dorchester at noon, and that is the time for clearing up. We did reach Dorchester at noon—and how it rained! A run and a rush at the station through rain above and 3 inches of water below to get into a covered vehicle—a very poor one, as it proved, a break with an extempore canvas top and calico curtains. "Two miles to the show-yard, sir." N.B.—Miles are very short in measurement on such occasions, the reason being to enlarge the fare. Oh, how it rained! Surely it had never rained at Dorchester for many months, to come down in this steady torrent. Peeping through the curtains at the driver's back, I see we are in a town of avenues. Idiot Englishmen to plant avenues in such a wet climate! N.B.—My bosom's lord did not now sit lightly on his throne, for my spirits sank with sodden feet. We enter, I see, a long narrow street with garlands from pole to pole on the sides, all drenching wet, and flags hanging from windows and across the street. Miserable flags, flopping, not flapping, and floating in a breeze. Unhappy flags, trying to run into small compass and hide themselves; wet corners catching up and sticking—poor, abbreviated, wretched poles and bunting. We pass, I presume, a Town Hall: it may be a nice building, but evergreens soaked with rain do not improve any building. The miserable conductor leaves his post on the step for a minute, and I see down the long street we have just passed through, and I see not one human being, but a forest of wet umbrellas with human legs staggering under them. We go on and enter another avenue—of Elms this time, but not such fine trees as our Wiltshire Elms. The trees only add to our misery, for the torrent becomes a series of waterspouts as the rain, broken and turned by some branches, pours through between others. Another peep through the curtains behind the driver, and I see a rising ground—a park no doubt, some large tents, and, standing high above everything, some agricultural machines. This park, like the long street, is covered with a wondrous growth of that large mushroom, Agaricus umbrellaensis. Not a human being is visible, but the Agarici umbrellaenses seem, strange to say, in motion. A halt amid pools of mud half way up to the axletrees; we descend into a mud bath, pass the clicking turnstiles, and buy from a half-drowned boy (deceased now, doubtless), a damp catalogue. The one hope on which I rested was that this, the show-yard—Kingston Park, I believe—had a porous subsoil. This hope lingered, but now left me. The mud oozed through the dank grass; the grass, soon trodden-in, wholly disappeared, and around the entrances of the tents the ground became like a cowyard in winter. I go at once to the refreshment tent, feeling that to be fortified within might lessen the peril from the damp without. The careful and attentive keepers of the refreshment booth had littered the floor deep with straw, which was like a damp sponge, and from which the water issued at each step. The rain came through the canvas roof. I sat on a damp form, but had the best of fare and the most careful attendance.

Making for the Arts' building, as it was a wooden erection I found it "choke full," and a struggling, slipping, dripping crowd in vain seeking to enter.

Then to the poultry tent; I love that tent, it is an acquaintance of ten years' standing. How often have I admired its splendid proportions, and counted its fourteen pretty little flags! With difficulty I enter, and what an atmosphere! Fortunately the English lower orders do not eat garlic. It is the cheap day, and 8,500 people are at the Show, chiefly of the lower classes, and jolly and good-natured, if a trifle vulgar, are they all. I was jammed tight, and then jolted onward. Sometimes I saw a Spanish cock's face, at other times a gleam of a tail, but class unknown, as the sight was momentary. If the poor poultry could have spoken, they would, I am sure, have said with Milton—

"Fit audience let us find though few,"

for the crowd were there from necessity not inclination; they had no love of poultry or Pigeons, but a strong wish to avoid that continuous downpour. Now and then the lads took to imitating the Cochins crowing, which seemed to astound many. Once driven near a Pigeon's pen by the surging of the crowd, a woman noticing the tares inside, said, "Lor! they feed the poor things on peppercorns!" Much amusement seemed to be caused by the many prizes. "Here be another first prize." "Why, bless us, here's another." Wedged up beside Mr. Hinton's beautiful first-prize Polish hens, five giggling servant girls, each with a chignon—mark the chignon!—went into fits of laughter at the topknots, as if the hens had not more right to them than they

had to theirs, for the hens' chignons were not pinned to their heads, but grew there, and no cocoa-nut fibre stuffing was under them; *they* had not robbed a door mat. In this tent I remained until three o'clock, seeing absolutely nothing, jammed, jolted, crushed; seeing the rain over the forest of umbrellas at either end, umbrellas of those desirous of entering but unable, and I saw it was still raining just as heavily as ever. But at three came a sudden change, light first, then less rain, then none, then gorgeous, clear sunshine. The mob dispersed, for the band began to play, and, with very few in the tent, I began my pleasure and my work, for I soon found pen No. 1, Class 1. Spanish cock. The atmosphere grew pleasant, the sun seemed to be verily licking up the wet, the spirits of man and bird revived, and what under his genial influence I saw shall be told next week.—Wiltshire Rector.

BEDLINGTON POULTRY SHOW.

In last week's Journal "Bedlington Terrier" says, "If this bird (pen 275, White Owl) was not in its pen when that class was judged the fault is not mine, and does not interfere with the accuracy of my report." It as certainly, however, plainly enough purposely reflects on the decision of my colleague and myself, when coupled with his former statement—"The Owls were all poor except pen 275, which was unnoticed."

"Bedlington Terrier" now says, "In the Barb class Mr. Orange's bird had a red card upon which was printed 'first prize' tied on its pen, No. 301; and in substantiation of this fact I refer Mr. Hewitt to the list of awards which was published in the *Newcastle Daily Chronicle*. This paper had a reporter on the ground, and if the card was put on a wrong pen by mistake I had nothing to do with that." I myself never assumed for a moment that "Bedlington Terrier" had anything "to do with that," and why this unsolicited denial I know not; but this I do know, that both of the prize cards in the Barb class were properly tied on Mr. Van Haansbergen's pens about an hour before he says his report was written, and Mr. Orange's pen was then unnoticed. The error of the Newcastle reporter cannot surely be urged to falsify the actually correct award as made; and I must here contend arbitrators are not at all responsible for mistakes inserted in local newspapers.

Most persons will no doubt be surprised to hear that "Bedlington Terrier" and Mr. John G. Dunn, 55, Westmoreland Road, Newcastle-on-Tyne, are one and the same person; and with this fact perhaps his criticisms on the Variety class will be read with greatly increased interest. Mr. Dunn writes, "Those two pens, 325 and 326 in the Variety class, belong to me." In his criticism, when writing as "Bedlington Terrier," he reports thus of his own birds—"The Variety class was strong; the two pens containing Yellow and White Dragoons, Nos. 325 and 326, were undoubtedly the two best pens shown, and richly merited the honours of first and second prizes, which they did not receive." For the direct information of Messrs. "Bedlington Terrier" and Dunn & Co. I need only here add, when these Dragoon Pigeons were penned I was present, about an hour and a half after the class was judged, and stated to the man then putting them into the pens, "Well, it does not much matter, for they would not have interfered with the prize birds."

For the exposition now given I am indebted to the spontaneous letters of personally unknown correspondents who were on the spot whilst "Bedlington Terrier" was engaged in compiling items for his report; and again (now publicly) beg to thank both those parties for this and other information conveyed by them of a far more startling character, which in due time, if conclusively proved to be correct, shall receive my best attention. At present I think, however, it is scarcely ripe for disclosure.—Edward Hewitt.

[To the above reply we shall insert no response, nor shall we add any comment. We have communications relative which we shall not publish unless similar conduct renders publication needful, and others which we shall publish after making further inquiries.—Eds.]

Oxford Poultry and Pigeon Show.—We think that the Committee in introducing for the first time, on an extensive scale, a Show in Oxford of poultry and Pigeons, are justified in believing that from the very general and increasing interest taken in poultry in this neighbourhood, the distinguished patronage already promised, and the excellent railway accommodation possessed by Oxford, an exhibition much above the average may be fairly anticipated. Subscriptions to a handsome amount have been promised; eight silver cups have been presented as prizes; the Mayor and Corporation have kindly granted the use of the Corn Exchange for the Show. The competition will be open to all England.

Ipswich Poultry Show.—We find that Mr. W. B. Jeffries, Secretary and projector of this local Show, has assumed for it a new title—viz., the Suffolk and East of England. As this title had been previously adopted for exhibitions of considerable importance held in the eastern counties, and another to take place as per advertisement in our columns, in conjunction with the Suffolk Agricultural Society's next annual meeting, we consider it fair to Mr. W. Groom, of Ipswich, under whose management these successful exhibitions are conducted, to state that that gentleman is in no way whatever connected with the Ipswich Poultry Show.

LIABILITY OF POULTRY SHOW COMMITTEES.

I think the case Fearon *v.* Chorley, copied in last week's Journal, is one of very great importance both to committees and exhibitors. I believe I have seen reports in back numbers of our Journal where Judges have given decisions directly opposed to the one quoted above, notably the case of Messrs. Jennison, of Manchester, where the bird (a Pigeon, I think), was stolen from its pen during the hours the exhibition was open. It seems odd to me, when the law is so distinct, two Judges should give such opposite verdicts. Is there not some higher Court where a case could be taken, and a decision got, by which ordinary County Court Judges would be bound? For if committees are to be held responsible absolutely where no culpable negligence is proved, it appears to me poultry shows must collapse, for no body of men would care to get up an exhibition, knowing as they do that in nine cases out of ten they barely pay expenses, and in addition are at the mercy of anyone who chooses to swear he has not received his own birds back again. We all know there are plenty of black sheep in the fancy, and what could be easier than for one of them to send a pen of birds to a show for the express purpose of denying them when returned to him, and coming on the committee for £10, £20, or even £50 according to the elasticity of his conscience? Will some of our leading committees take the matter up? I am sure most of our old exhibitors would assist in having a case, should another occur, tried by a higher tribunal.—An Occasional Exhibitor.

BIRDS VARYING THEIR NOTES.

In a late number of the Journal I find the following observations on the Trumpeter Pigeon, page 451—"There is a peculiarity in the coo of this bird, distinct from any other breed." This difference in the note of Pigeons leads me to observe a curious difference in the note of the Cuckoo here and in the south of France. The Cuckoo abounds in the woods about Paris, and its note is cuck-cuck-coo, instead of our bird's cuck-coo. I supposed they were talking French, but is it common for birds in different countries to adopt a change of note?—C. W. H.

[The Cuckoo varies its note at certain periods of the year. When it first arrives in England "the wandering voice" is "Cuck-oo," but now in Sussex and elsewhere we hear "cuck-oo, cuck-oo, cuck-cuck-oo, cuck-cuck-oo."—Eds.]

TUMBLING—VOLUNTARY OR INVOLUNTARY?

"Scotch Thistle" seems to attempt the solution of this knotty point with the confidence of one who knows his way to the truth "hid within the centre." I for one shall be delighted to follow him as far as I can see him, and I have no doubt there are hundreds of readers of this Journal who will also follow; but an experience with Tumblers extending over twenty years tells me we had better tread cautiously, or we may find ourselves up to the eyes in mud.

I submit that unless the words "voluntary" and "involuntary" be taken to mean, in a loose sense, natural and unnatural, we have no means of arriving at what we call knowledge. The clown at a circus would, no doubt, say that the action of tumbling was voluntary in his case; but though I have kept all the grades of tumbling Pigeons referred to by "Scotch Thistle," as well as some which he has not named, no bird has ever confided the secret to me of whether it tumbled voluntarily or involuntarily.

In endeavouring to guess the truth, perhaps the difficulty of valuing the evidence of those incapables called Ground Tumblers, will be less, if we carefully consider what a Ground Tumbler is. A Tumbler which cannot rise from the ground, or does so after several futile attempts, is a nervous bird, possibly from breeding-in, or one which has been incarcerated in a coop; or, perhaps, it has been shut up in a dark place until, coming into the light of day, the poor thing is dazed; or, it may be the offspring of parents labouring under these drawbacks to vigorous health. In any case it is what we call a well-bred Tumbler. Its ground-tumbling arises not from any added power of tumbling, for a good Air Tumbler will do more tumbling in half an hour's time, but from a state of nervous indecision; the bird wants to tumble and it wants to fly, and in its eagerness to do both it begins to tumble as soon as its wings are spread. Habit is second nature, and by a little drilling, and some trickery, this eagerness gives place to despair, and the poor bird becomes a "first-class" incapable, and is often sold at a great price.

The most successful breeder of Ground Tumblers I ever knew was a lame, unlettered man who lived in a little hut, and whose

Pigeons went in at the door. His birds tumbled on the ground as cats might have done. Report said that nearly any good Air Tumbler would in his hands become a ground Tumbler. Some of the birds I saw had not been on a house for months; indeed, if a bird not quite broken in spirit attempted to rise he would knock it down with his cap. I could say more, but perhaps this is sufficient for a right appreciation of ground tumbling.

Though I hold no opinion as to the voluntariness or involuntariness of tumbling, except in the unscientific sense of its being natural or unnatural, I cannot help thinking that the Tumbler which soars into the sky and does his "balancing" far away from the false balances of this naughty world, is a far more agreeable spectacle than the one which tumbles on the ground, and can fly no better than a Duck.—Old Bob Ridley.

WHY DO PIGEONS TUMBLE?

I am glad to recognise in "Scotch Thistle" a Pigeon fancier akin to a naturalist—a close observer of the birds, and one who reasons from what he observes. This is that higher order of fancier which I am specially pleased to welcome. There is not only room for various tastes in the fancy—and where, as I have often said, will you find so many and different classes of birds to catch the taste?—but, also, persons may take to Pigeons and enjoy Pigeons variously. One likes to see them fly about his home and feed from his hand; another goes in for points, properties, and prizes; then a third, as "Scotch Thistle," watches their habits and reasons thereon, watching, too, the habits of each individual bird.

I see that "Scotch Thistle" has embraced the later views of Mr. Brent as to why Pigeons tumble. These views are contained in an article in vol. vi. of this Journal, page 104 (in the number of February 2nd, 1864). I make no doubt that "Scotch Thistle" is well acquainted with that paper, as he refers to Mr. Brent's reception of some House Tumblers from Mr. Paton, which was as far back, I think, as 1860.

Now, I shall be very loth to give up the theory that the naturally-bred older class of Tumblers, of which the Baldhead is a good specimen—a high-flying and moderately-performing bird, Tumbler also in form, compact, neat-headed, pearl-eyed; not the long mousey-headed coarse bird that the Roller is, ill-shaped, bad-coloured, and of low caste—I shall be loth to think that he, the Baldhead, really, when flying over my head in the merriest of merry moods, just beginning to enjoy life with his young mate, is yet a diseased creature. If I must yield to plain clear reasoning—well, I will. I'll then give up the theory of the older fanciers and the pleasanter theory, but with great regret.

How many old-cherished beliefs one has to give up. The pretty tale about the building of Rome, and Romulus and Remus, is now said to be a myth. The Duke's "Up, Guards, and at them," was never uttered. Chevy Chase, perhaps, will be proved by some hard reasoner never to have been fought. We are now told that humpbacked King Richard had no hump; that Robespierre was a gentle angel; so, also, says Mr. Froude, was Henry VIII. (How his wives' heads happened to come off I cannot see: perhaps, like the heads of wax dolls, they were stitched on and the stitches came undone, as is the custom with wax dolls). But to return to Tumblers. I make no manner of doubt that there are classes of Tumblers, or rather Rollers, which suffer from some brain disease, and hence their actions. The most extreme case is that of the Lowtan or Ground Tumblers of India, which roll over and over on the ground, not unlike Pigeons in their death struggles when their necks are wrung. These, no doubt, are diseased, epileptic birds, but they are not Tumblers at all, the word Lowtan, says an authority, meaning to roll on the ground. I pass on next to the House Tumbler, one degree in disease removed from the Lowtan, which in struggling to fly a few feet high rolls back. Such a bird, says Brent, will after great struggles overcome the involuntary turning and reach the desired height, but out of breath. Brent says, also, he had a bird who used to rise 2 feet and then fall back, evidently desirous of reaching the roof and flying as a bird, but its disease prevented it, and back again it fell. No one can doubt but this, too, is a case of disease; but these birds are diseased in a less degree than the Lowtans, but should be called House Rollers, not Tumblers. Next come the Rollers, so frequently called in bird shops Birmingham Rollers. "These birds," says Brent, "whilst flying sometimes roll until they touch the ground, and not unfrequently kill themselves. I had," he adds, "two young cocks which killed themselves on the spot in the past summer from this cause."

Thus we have Ground Rollers, House Rollers ("some rapping their heads in flying down from a perch, and so afraid to come down and feed," says Brent), and Flying Rollers. These I hold to be all sufferers in different degrees from some disorder of the brain, all fearful of hurting themselves, and not Tumblers at all—to my mind giving no more pleasure than seeing persons in fits. I pass these Rollers by, and now come to another class of bird, the result in form of careful selection, still being a far more natural class of birds than the Short-faced Tumblers, as they can and do rear their own young perfectly, and they have perfect powers of flight, unlike, for instance, the tender Almond. This class of bird was the Tumbler proper of the older fanciers, the same two hundred years ago as now. It was not bred from the Rollers or Dutch Tumblers, because, holding my theory to be true, disease being always increased by domestication (a high fancy Pigeon is almost the weakest), it is strong and vigorous, and the disease of rolling does not exist in it; its brain is clear of it, but if bred from it, that disease would have appeared, not in a milder form, but in an increased degree.

I now speak of not-rolling, but falling Pigeons, of the Tumbler proper—a fancy bird, but not a weakened bird—a fancy bird for returning to the Baldhead as a type of the old variety of Tumbler proper. He has a clear white head, separated by a straight line from another colour. Great care must have been bestowed to get at first and then to continue (to breed true) that clear white head, a very snowball. The bird has also clear pearl eyes, the result of careful breeding, a sharpish-pointed not Dove-house-shaped beak, rounded head, and clear flight and tail, with rounded undove-house-like form. All this proves careful fancy breeding and selection. The same is true more or less of any of the right and proper-shaped clean-legged Flying Tumblers, whether Beards, Mottles, or whole-colours. They all possess a shape and carriage so far removed from the original bird that they are entitled to be called fancy Pigeons. In addition, these birds possess two peculiarities of flight—they mount up into the air straight over their dwelling, they do not shoot in one direction like the Carrier kind of Pigeons, but ascend, rising higher and higher, keeping compactly together in a close mass, and making circles, not straight lines. Apart from the tumbling the flight is very interesting. I have Baldheads which sometimes go clear out of sight. I keep my eye on the place where I lost them, and then I see them come into sight again. High flying of such a character everyone likes to see, and I admire the daring power of the little bird thus ascending and ascending, and yet with its heart and eye on its home. I often, when watching mine, use at them the words Wordsworth uses in regard to the Skylark—

> "Type of the wise, who soar, but never roam,
> True to the kindred points of Heaven and home."

Next, and in addition to this marvellous wing-power pleasantly exhibited to the eye, its master, the Tumbler, has a power of turning a somersault clearly and cleanly, and if its wings be white, which I think they always should be, the effect is better still, as they twinkle, so to speak, and look very pretty, contrasting with the dark body of the bird, and show well against the sky. Then the tumble I still believe to be the result of joyousness, as I think no sick bird tumbles, nor a hen with egg. Then young birds begin by backing, but get to tumble as they become quite adult. That this tumbling is not disease but arises from sportiveness, is, I think, partly proved from this, that in close and high-bred birds it does not increase but diminishes, and in them is, we know, very rare. The "flapping," and "sailing," and "backing" of some Tumblers is, I think, joyous too, but a kind of make-up on the bird's part for not tumbling, or failures in attempting. Then, at pairing time they tumble most, and that time is the most joyful time of all to a bird. I can understand the horror of a bird rolling down from air and being robbed of its fly, and its own disgust, but I can also understand the joy of the feathered acrobat in tumbling over in his air-bath. Still, I own "Scotch Thistle's" theory and Mr. Brent's later theory may be right, but I am not prepared at present to yield up the older and much more agreeable theory. Everyone likes to see a good Tumbler, and I believe the taste, a pure healthy one, is reviving. The marvellous height of the flight, its circling movement, and the occasional tumbles of the bird in it, give pleasure to my mind, because both flight and tumbles owe their origin, according to my belief, to pleasure. On a fine brilliant day, a day often preceding wet, Rooks in their joy at the day's brightness and balminess rattle their wings. The Homing varieties of Pigeons dart and rush off extra joyously on some occasions. Excess of animal spirits is shown by the Pouter's flappings and puffings, and to my mind by the Tumbler's soarings and tumblings; but I make a wide distinction between an outpouring of Nature's joyfulness, and the manifestation of disease in all the Rollers, whether Ground, House, or Flying. I may be wrong, but I hope I am not. Of the number—by far the greater number—of Tumblers, we know they do not tumble; eye, head, markings, all correct, but no aërial performance. "Scotch Thistle" would say they have overcome the fault; I, that they fail in the beauty of tumbling.

In conclusion, I would make a few remarks upon the cultivation of Tumblers at Birmingham. Much as all fanciers owe to Mr. Ludlow's pencil, I regret that he chose the cross-breed between Roller and Tumbler as his only specimen of the Flying Tumbler. The bird, with a pedigree of two centuries, deserved a portrait; indeed, I should like to see a group of all the older varieties of the Tumbler, with the legs free from one single feather. Mr. Hallam's articles on the Birmingham Tumblers

two years ago were very interesting, and admirable in their practicalness. As he says, some old fanciers in Birmingham will not allow a muff-legged bird in their loft. There would seem to be no difficulty, from the great prevalence of the flying fancy in Birmingham, to breed-up true to colour and proper Tumbler characteristics, with each bird being "a good performer," although colour appears there to have greatly neglected, as, indeed, everywhere, I fear. Thus, the high flying Tumblers sent by Mr. Brent into Wiltshire some years ago were good on the wing, but broken baldpate-looking things, the very reverse of beautiful. I hope that many more besides "SCOTCH THISTLE," will derive pleasure from watching the habits of the pretty little, easily-managed English Tumbler.—WILTSHIRE RECTOR.

SELLING DISEASED PIGEONS.

I NOTICED a report of a County Court case at Swansea in which I was the defendant. I may mention that I was partly prepared to see such a report, as I received a letter from the plaintiff informing me that he intended summoning me for the other pair (copy of which letter I enclose to you), and also that a report of the proceedings would be inserted in several papers, with the sole purpose, I presume, of damaging my character as a breeder of fancy poultry and Pigeons. I have sold hundreds of Pigeons and poultry, and have never had a complaint from any with whom I have done business, and this is the first time I have ever had occasion to be in a County Court during my experience of poultry and Pigeon breeding. I always make it a rule when I send goods on approval, as I did in this case, to have a post-office order payable ten days after date.

The *Herald* states that Mr. Crock, in addressing the jury, told them it was a common practice to sell diseased Pigeons. If that is his experience it is, I am happy to say, not mine, and I hope there are many others who can say the same. The Judge gave me a verdict when the case was previously heard, on the ground that the birds ought to have been declared diseased a long time before they were so declared. Whilst the birds were in possession of the plaintiff I received a post-card from him stating that he liked the birds very much, and would keep them, which card I produced at both hearings of the case. The second pair which he threatens to sue for were also sent ten days on approval, and were bought by him after the first pair had been in his possession six days, which is sufficient time for any fancier to tell whether a bird is diseased or not. The birds were sound when I sent them to him, and no disease of any kind was amongst my stock. At the inclement season of the year (November) high-class Carriers would be liable to catch cold going a journey by rail, for which, as I said in my defence, I do not consider I am responsible. I enclose you a copy of the threatening letter I have mentioned, and I would be glad if you have a space to give it publicity.—JOHN WATKINS.

[We think the jury were misled, for the Pigeons being placed in the purchaser's possession for ten days gave him ample time for him to ascertain if they were diseased. If a new trial were granted and fuller evidence of the healthiness of your birds were produced, we think the verdict would be reversed. The Judge giving you a verdict in the first instance is immaterial, for his decision was merely on an omission in the pleadings. The letter sent to you by the plaintiff is quite indefensible.—EDS.]

EVENLY-MARKED CANARIES AND MULES.

"How on earth can a bird be evenly-marked which has an odd number of places on its body dark, such as wings, tail, and cap? Three places, or perhaps some people would say five—each side of the tail two, each wing two, and cap one, making five altogether. Canaries and Mules ought to be judged by the same rules, and in my opinion the most desirable even-marking is pencilled eyes and even saddle. Black in the tail is an abomination, and a dark cap worse. After pencilled eyes and even saddle, I place clear head and even saddle." So writes one of the pillars of the fancy, one of the most successful Mule exhibitors we have. The style is forcible, the question propounded a puzzler, and the opinion expressed one deserving of respect.

"Much has been said about Evenly-marked Canaries, but I do not agree with the decision of Mr. Robert C. Wallace, who has offered his opinion on what he considers the form of marking should be. I therefore beg to detail my knowledge of the standard. All evenly-marked birds should be marked on both sides of the eyes, back and front, half on the wing, and one black feather on each side of the tail. From the beak to the tail end, under and over, should be clear of all foul feathers. In this part of Yorkshire and Lancashire we do not consider eye marks alone or wing marks alone to constitute show birds, nor do we consider birds marked on the wings and in front of the eyes only as good birds for show. To constitute a show bird the marking must go round the eyes from front to back. As for cap-marked birds, no such thing goes to a show! At Middlesbrough and Baildon, they, this year, made a distinct class for them in the Uneven-marked class. I think they have put them in the right place." So writes another very old Yorkshire breeder who has staged as many winning Evenly-marked Yorkshire birds as most admirers of that variety.

I have been asked to add my opinion on the subject, and I apprehend the two letters from which I have quoted have been sent to furnish me with a few pegs on which to hang a few notes. I will not attempt to prove as an abstract question how a bird can be evenly-marked when it has an odd number of marks on its body, though now-a-days it is possible to prove almost anything—even that a man is the daughter of his grandfather's son—an incontrovertible fact. But if the tail be admitted as one of the places in which marks proper may be found, then, unless there be a limit to the number of dark feathers admissible in the tail, it is quite possible for a bird to have six on one side and six on the other, and who shall say this is not even? But the fact is, the tail is a most objectionable place for marks. Birds have, unfortunately, only one tail. For the sake of the fancy this is perhaps to be regretted, in other respects it is an admissible arrangement. It is dangerous ground on which to tread when attempting to legislate on the subject of even-marking on a single member, inasmuch as they may increase on either side till the idea intended is lost in uniformity. "Black in the tail is abomination." It is at least but of little or no value, for even in the case of an evenly tail-marked Canary or Mule there is in ninety-nine cases out of every hundred the presence of a most objectionable dark fine round the base of the dark feathers which is barely counterbalanced by the evenly-marked tail—nay, is not counterbalanced by it, for I should repudiate a beauty which necessitated the existence of an eyesore in its immediate neighbourhood. If the evenly-balanced tail exists without any perceptible dark flue, I am willing to admit that such a tail would score, though I am by no means willing to admit that a six-pointed bird becomes of necessity a better bird than a four-pointed one, but very frequently the contrary.

Besides being restricted to one tail, birds are limited to one head a-piece; but they have two eyes and two wings, and here must we look for true even-marking, clear and decided. What exists on the thighs is of so undecided a character as to be of no avail for show purposes, and only in a very close contest where an exact estimate of points was required would it be taken into consideration. Practically it has a negative rather than a positive value.

With regard to eye-marks, I should consider circular marks simply hideous. The marking described above is the true type of perfection as universally accepted. It should come from a well-defined point clear of the front of the eye, pass a hair's breadth above and below it, and, following the curve of the head, sweep away in a pencilled line, finishing in a point. Such marking is seldom seen. A lot of spurious stuff which has to pass for even-marking finds its way into our shows, but there is a wide difference between the neatly pencilled eye and an irregular patch on the side of the head, which in some parts of its area happens to enclose the eye. The one is a mark of great value, the other is next to worthless, assuming more of the character of a blotch, to which class belong caps of all kinds. They are not markings proper. They do not exist in localities in which they can be repeated in duplicate. Existing in conjunction with even-marking, they mar its beauty and spoil its effect. I entirely agree with Mr. Hawman that a perfectly clear run from the beak to the tail, above and below, is a *sine quâ non* in a marked bird. As well might a spangled back (in itself a beautiful marking), or a horseshoe on the breast, be accepted for even-marking as recognise a cap. Sometimes, however, it has been thought desirable to allow birds with oval caps to compete with evenly-marked ones, as at the great Cheltenham Show last year. Such arrangement is not to be mistaken for the enunciation of a principle or the tangible expression of an opinion; it is rather a compromise between the rigidly exacting definition "Evenly-marked," and the comprehensive "Best marked or variegated" of the Palace. But if the *beau idéal* of an exactly marked bird be one with a clean run above and below, it is only playing variations on "The Old Man and his Ass" to depart from this universally recognised standard with a view to include in any class birds which have no business there, and for which special provision is made in a section where imperfections in marking are ignored in favour of colour and quality. Into this section capped bird ought to go.

I believe that we in Sunderland were the first to append to our schedules a definition of what we wished to be understood by even-marking, that the judges might adjudicate according to the spirit of our schedule, and not according to any whim or caprice of their own. Any committee has a right to offer prizes for what it thinks fit, only let it be clearly specified what the conditions are, and a judge who neglects to read his schedule or poohpoohs its instructions fails in his duty. It will be found that with scarcely a single exception every Canary society in the country holds the same views on even-marking, slightly modified, perhaps, as to the amount of wing or tail marks, but most assuredly united as to the exclusion of caps. Indeed, the understanding is so general that a definition is unnecessary, ex-

cept where the term "Variegated" occurs in the same schedule, in which case the distinction should be clearly pointed out.

While speaking of the amount of marking, I will just say that I consider half the wing dark to be too much. I take it to be only a matter of opinion, and do not wish to be understood to speak authoritatively. I consider seven dark feathers in either wing ample. I prefer less. As few as four make a perfect V, and with such a wing there is probability of a bird blowing so black as to hold out little prospect of throwing lightly-marked stock. A heavy wing is not my idea of a well-marked wing. Fancy "Edward I." or those two wonderful Jonque Mules Mr. Doel exhibited at the Palace in 1870, with their delicately marked wings half black! To have half a wing dark almost invariably involves more than meets the eye, certainly more than the words themselves, taken in their integrity, mean. With so much of the wing dark, how often it happens that many of the smaller feathers are dark also—indeed, with half the pens dark, irregularities may be expected, and if such seeming evenly-marked wings be extended a wide difference will be found to exist between their apparent and their real value. These are not the wings a breeder would select as the foundation of future wings. All marking having any pretension to regularity is pretty generally the result of chance. Its extreme rarity demonstrates this, but heavy marking has a tendency to produce heavily-variegated and irregularly-marked, rather than exactly marked specimens; and a bird with half its wing dark is not far enough up the ladder, either as a show bird, or as one whose offspring is likely to be as good or better than himself.—W. A. Blakston.

OUR LETTER BOX.

Illustrated Poultry Book (*A. B., Subscribr*).—That by Mr. Wright. It is published by Messrs. Cassell, Petter, & Galpin.

Andalusians (*St. Edmund*).—Ask any questions you please, we will answer to the best of our ability. We cannot account for the eccentricities of the eggs. Like should produce like, and we do not augur well from the apparently white chickens; we must say as much for the black ones. Spanish have many white feathers when hatched, and your account would lead us to believe some have thrown back. We would not advise you to give up hope, or to destroy the chickens, but we should have more hope of excellence were they all of a dingy colour. It is fair to tell you, we have never bred Andalusians.

Washing Light Brahmas for Exhibition (*D. S. G. H.*).—You may take a sponge wetted with warm water, and you may use a little soap. Wipe the feathers gently downward; the outsides only are dirty. When they are clean wash the sponge thoroughly, and wipe the feathers with it, wetted slightly with clean cold water. If there be any sun expose them to it in a basket filled with soft straw. If, as is most likely, there be no sun, put them before a fire, not close to it, and let them stay till they are dry. If you wash your fowls with a view of sending them to a show, you should not do so till a day or two before it, as the feathers become dirty more easily after they have been washed.

Hen-Cock (*J. B.*).—You are the possessor of a hen-cock.

> "A whistling girl and crowing hen
> Are neither fit for yards nor men."

It will make good soup, and is fit for nothing else. The metamorphosis is the result of an injury to the laying organs, and there is no remedy.

Weight of Light Brahmas (*F. I.*).—Light Brahmas are to a certain extent birds of colour, and if you choose them perfect in their markings, weight is not of the first importance. At the same time we must tell you 7lbs. form a good weight for laying pullets. The very heavy birds we meet with at shows are often very old, and if you have capital layers weighing 7 lbs. you may be satisfied, and show with a good hope of success. Choose your exhibition birds with a well-striped hackle, the black streaks being accurately defined, a black tail, and black flights. There must be no markings on the back or saddle.

Cross-bred Dorkings and Brahmas (*W. F.*).—We are not friendly to crosses, except when the introduction of a new breed may supply a quality in which another is deficient. Thus, we believe, in any country where Dorkings fail, or are found delicate, the introduction of Brahma blood may be found beneficial, but we do not believe the number of eggs is increased. Where fowls are wanted for the table, and where there is a market for them, no fowl will beat the Dorking, and none of the sitting breeds will lay better. When a good hardy fowl is required that asks for no other care than being provided with food, we are in favour of a cross between the Brahma and Dorking. The real system of providing eggs profitably is to have a sufficiency of pullets arriving at the laying age in regular succession. You will then have eggs in the season when they are very valuable, and a very little arrangement will secure this. You are, we believe, quite right in saying that from very early eggs there is always a majority of cocks, but you are wrong in saying they would not be so suitable for market. They would be fit early in the season: poultry is then scarce, and size is a desideratum. Cockerels are much larger than pullets.

Egg-preserving (*L. M.*).—We know of no better mode than that we detailed on page 472 last week. The composition you mention we do not know.

The Cumulet Pigeon (*M. B.*).—The authority on Cumulet Pigeons states not only that "they are most extraordinary birds to fly high," but that "two birds will fly together as well as a flock." This we doubt, as even Tumblers do not pack well unless there are a good many together. The more you get the closer they will probably keep together. Put them on the wing on a fine day, and in the morning. As you continue to watch their habits, we should be obliged by a few notes from you when you have a flock, as they are not much known in England.

Infectious Canary Disease (*C. M.*).—We know of no infectious disease among Canaries.

Canary Continually Moulting (*C. A. J.*).—Great heat will sometimes cause an unseasonable moult. Try by keeping him in a very warm place to induce a complete moult. A Parr's life pill and a Mrs. Allen's bottle are much wanted among Canaries. You may read any quantity of rubbish in books, and you may accept any amount of nonsense as fact if you listen to all the stuff which people who never dare to think for themselves relate as *truth*. It is not usual to pair two Crests, but it is one of the steps in breeding, for which there is a proper time, the same as for pairing two Yellows or two Buffs.—W. A. Blakston.

Hive Threatening to Swarm (*J. C.*).—Before this reply to your query reaches you, the bees of your employer's hive will have most probably swarmed for good, or will have become quietly disposed to remain in their old home. The cause of their leaving their hive and returning thereto on three several occasions, may have arisen from their old queen being unable or unwilling to accompany the swarms. Sometimes, from incapacity to fly, she becomes lost on one of the occasions of the bees leaving. In that case the swarm does not properly come off until the inmates of the royal cells arrive at maturity, but the bees often manifest considerable restlessness. We do not think there is anything to be done to prevent their wasting so much valuable time.

Ants Hive-robbers—Adding Supers (*A Young Apiarian*).—Ants are undoubtedly injurious to bees as pilferers if they find their way into the hives, as they will by minute crannies; but you can easily get rid of them by fresh tarring your posts every now and then, or sprinkling petroline oil about them from time to time. Now is the time (when you read this) to put a super on your swarm—that is, if the weather continues favourable and the hive filled with comb. Open the communication at the same time you give the super, and if there is a bit of fresh comb in it so much the better.

Guinea Pigs *v.* Rats (*W. F.*).—We never heard before of anyone believing that the presence of guinea pigs banished rats, and your experience shows it is a delusion.

METEOROLOGICAL OBSERVATIONS,
CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude 111 feet.

Date. 1872. June.	A.M. Barometer and Sea Level.	A.M. Hygrometer. Dry.	A.M. Hygrometer. Wet.	A.M. Direction of Wind.	A.M. Temp. of Soil at 1 ft.	In the Day. Shade Temperature. Max.	In the Day. Shade Temperature. Min.	In the Day. Radiation Temperature. In sun.	In the Day. Radiation Temperature. On grass	Rain.
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 5	30.126	61.0	55.7	W.	54 8	72.6	41.8	114 6	41 4	—
Th. 6	29.889	59 5	56.6	S.W.	57.8	65.0	53.4	114 0	51 4	0.070
Fri. 7	29.720	52 7	47 6	S.W.	55 2	65.8	46.6	113.1	39.8	0.230
Sat. 8	29 745	55.5	51 3	S.W.	54 4	58.5	45.2	85 4	43.8	0 211
Sun. 9	29.455	54.6	52.4	W S.W.	54 3	60.2	51.1	92.1	51.3	0 020
Mo. 10	29.550	53 5	50.5	W.	53 8	63 8	47 8	112.2	44 4	0.020
Tu. 11	29.693	53.1	52.4	S.	53.9	63.1	46 9	75.2	43.7	0.325
Means	29.741	55.7	52.4		54 8	64 1	46.7	100.9	45.1	0.876

REMARKS.

5th.—A beautiful day; but rather cloudy in the evening.

6th.—Cloudy morning; occasional sprinkling showers about 3 P.M., and heavy rain between 5 and 6 P.M.; rain in the evening; but fine night.

7th.—Splendid in very early morning, gradually clouding over till 10 A.M., when there was a sharp shower, hail at 11.15 A.M.; and several short, though heavy showers in the afternoon and evening.

8th.—Very clear and bright in early morning, but getting gradually more and more cloudy, rain about 11 A.M., and showery all day.

9th.—Rain in morning; showery at noon; fine in the afternoon, frequent showers, but only slight.

10th.—Showery morning, thunder at 11.15 A.M.; fine afternoon and evening.

11th.—Showery all day, very dark between 1 and 2 P.M., a very disagreeable day throughout; but fair at night.

A cloudy, damp, showery, and unpleasant week, very little sun, and frequently strong winds.—*G. J. Symons.*

COVENT GARDEN MARKET.—June 12.

Owing to the unseasonable weather business transactions are much more limited, and the supply very irregular. The Continental goods are, however, arriving in very fair order, but not in large quantities. Out-door Strawberries are just making their appearance from various localities, and those from under glass are nearly ever, so that we have not much alteration to report.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples..... ½ sieve	0 0	to 0 0	Mulberries ..... ½lb.	0 0	to 0 0
Apricots..... doz.	0 0	3 0	Nectarines..... doz.	2 0	3 0
Cherries..... per box	2 0	4 0	Oranges..... ₱100	4 0	10 0
Chestnuts..... bushel	10 0	20 0	Peaches ..... doz.	10 0	24 0
Currants..... ½ sieve	0 0	0 0	Pears, kitchen..... doz.	0 0	0 0
Black..... do.	0 0	0 0	dessert..... doz.	0 0	0 0
Figs..... doz.	6 0	12 0	Pine Apples..... lb.	6 0	10 0
Filberts..... lb.	0 0	0 0	Plums ..... ½ sieve	0 0	0 0
Cobs..... lb.	0 0	1 0	Quinces..... doz.	0 0	0 0
Gooseberries..... quart	0 0	0 0	Raspberries..... lb.	0 0	1 0
Grapes, hothouse..... lb.	3 0	7 0	Strawberries..... ₱lb.	6 0	12 0
Lemons..... ₱100	7 0	10 0	Walnuts..... bushel	10 0	25 0
Melons..... each	5 0	10 0	ditto..... ₱100	1 0	2 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes..... doz.	4 0	to 6 0	Mushrooms..... pottle	2 0	to 3 0
Asparagus..... ₱100.	4 0	8 0	Mustard & Cress..... punnet	0 2	0 3
Beans, Kidney..... per 100	1 6	2 6	Onions..... bunch	0 4	0 9
Broad..... bushel	0 0	0 0	pickling..... quart	0 6	0 6
Beet, Red..... doz.	1 0	3 0	Parsley per doz. bunches	3 0	4 0
Broccoli..... bundle	0 9	1 6	Parsnips..... doz.	0 3	1 0
Cabbage..... doz.	1 0	1 6	Peas..... quart	1 0	2 6
Capsicums..... ₱100	0 0	0 0	Potatoes..... bushel	4 0	5 6
Carrots..... bunch	0 6	0 0	Kidney..... do.	3 0	5 0
Cauliflower..... doz.	3 0	8 0	New..... ₱lb.	0 3	0 6
Celery..... bundle	1 6	2 0	Radishes.. doz. bunches	0 6	1 0
Coleworts.. doz. bunches	2 0	3 6	Rhubarb..... bundle	0 3	1 6
Cucumbers..... each	0 6	1 0	Salsafy..... ½bundle	0 9	1 0
pickling..... doz.	0 0	0 0	Savoys..... doz.	0 0	0 0
Endive..... doz.	2 0	0 0	Scorzonera .... ½bundle	0 9	1
Fennel..... bunch	0 3	0 0	Sea-kale..... basket	0 0	0 0
Garlic..... lb.	0 3	0 0	Shallots ..... lb.	0 4	0 0
Herbs..... bunch	0 3	0 0	Spinach..... bushel	3 0	4 0
Horseradish..... bundle	5 0	7 0	Tomatoes..... doz.	3 0	6 0
Leeks..... bunch	0 0	0 2	Turnips..... bunch	0 3	0 9
Lettuce..... doz.	0 9	1 0	Vegetable Marrows.. doz.	0 0	0 0

WEEKLY CALENDAR.

Day of Month	Day of Week	JUNE 20—26, 1872.	Average Temperature near London.			Rain in 43 years.	Sun Rises.	Sun Sets.	Moon Rises.	Moon Sets.	Moon's Age.	Clock before Sun.	Day of Year.
			Day.	Night.	Mean.	Days.	m. h.	m. h.	m. h.	m. h.	Days.	m. s.	
20	Th	Meeting of Royal and Linnean Societies.	72.3	48.6	60.4	20	45 af 3	17 af 8	54 7	42 af 2	14	1 18	172
21	F	Longest Day.	74.4	50.5	62.4	18	45 3	17 8	9 9	29 3	○	1 31	173
22	S		73.6	48.8	61.2	17	46 3	18 8	8 10	27 4	16	1 44	174
23	Sun	4 SUNDAY AFTER TRINITY.	72.7	47.1	59.9	17	46 3	18 8	51 10	45 5	17	1 56	175
24	M	Meet. of Royal Geographical Society, 8.30 P.M.	74.1	48.9	61.5	15	46 3	18 8	22 11	11 7	18	2 9	176
25	Tu	Royal Horticultural Society's Birmingham	73.0	49.1	61.1	20	47 3	18 8	45 11	37 8	19	2 22	177
26	W	[Show opens.	74.3	49.2	61.7	20	47 3	18 8	morn.	1 10	20	2 34	178

From observations taken near London during forty-three years, the average day temperature of the week is 73.5°; and its night temperature 48.9°. The greatest heat was 93°, on the 22nd, 1846; and the lowest cold 30°, on the 20th, 1865. The greatest fall of rain was 0.72 inch.

HARDY PERENNIALS.

NOW that garden flowers of this interesting class find a place in the schedules of the leading horticultural societies, they will be brought more prominently before the public, and their merits as distinct decorative subjects will be more widely known and more highly appreciated. Some of the species, such as those of the Phlox, Pentstemon, and Delphinium, the varieties of which are so numerous and varied, have classes to themselves. The delicate beauty and exquisite perfume of the Phlox, as well as the high standard of perfection to which it has attained, entitle it to be placed in the front rank as a florists' flower. It is also indispensable in the mixed herbaceous border.

A border devoted almost exclusively to herbaceous plants ought to be formed in every garden. I have seen borders of this description formed in almost every class of soil—light, medium, and heavy loams. A shallow gravelly soil is the worst, as some of the species root deeply, and those which do not will succeed better in a deep loam with some holding power. I had to form an herbaceous border on a piece of ground where the soil was very light, and the gravel cropping up in places to within 6 inches of the surface. The first operation in this instance was to throw back the surface mould, so as to expose the gravel, which was removed to a uniform depth of 2 feet. The gravel was replaced with rather heavy loam and a portion of well-decayed manure. Whatever may be its depth, the soil ought to be well trenched-up and some decayed manure incorporated with it. Heavy loam will be much benefited by the addition of a liberal proportion of leaf mould; very light sandy loam by that of some of a heavy nature. The border should be drained if necessary, as stagnant water is highly injurious to most of the more tender subjects, and many of them would die-off in winter.

The position of the border is also important, and the best, as far as I have had experience, is one not too much exposed to the sun, and which is sheltered from the west. A border in front of a south wall fully exposed to the sun is, I think, the worst.

The border having been prepared, the planting must now be taken into consideration. Very dwarf subjects should be arranged in the front rows, gradually rising in height towards the back. Let us take the first and second lines; we shall find many species ranging in height when in flower from an inch or two to a foot, as the Primula, Sedum, Saxifraga, Sempervivum, Myosotis, Lithospermum, Aubrietia, Arabis, many of the dwarf Campanulas, and the dwarf Phloxes. The Saxifrages have always been favourites with me, and after an extended acquaintance they become even more interesting. S. oppositifolia produces its pretty purple flowers on stems an inch or two high early in April. S. cæspitosa, creamy white, and S. hypnoides, white—the dense moss-like habit of these dwarf flowering species affords a pleasing contrast to kinds of a taller habit; the flowers are produced in May. The common Meadow Saxifrage, S. granulata, and its double variety, cannot be omitted from the most select collection. S. Cymbalaria forms a dense mass of golden flowers, and is of dwarf habit; S. ceratophylla has handsome snow-white flowers; S. umbrosa, though common, is one of the most elegant; and of the tall species may be named S. Cotyledon and S. longifolia, which are very handsome, and the snow-white inflorescence is thrown up to the height of 2 feet. Scores of other handsome species and varieties may be named, all worthy of a place.

The Sedums are another family comprising very numerous and interesting species. The common Stonecrop, S. acre and S. acre variegatum, form dense masses, and in the normal form the golden flowers, freely produced on stems an inch or two high, are very pretty. The variegated form is very valuable for spring bedding. The dwarf species are very numerous.

Of taller-growing species I will name Sedum Sieboldi and a form of it with the foliage handsomely variegated, also S. Fabaria, recently noticed in these columns as a useful bedding plant; the flowers, rose and purple, are produced late in autumn. This is the tallest-growing species. Sempervivums are also an interesting feature in the front rows.

The different species of Primula cannot be omitted. Primula acaulis, the common Primrose, deservedly heads the list; all the varieties should find a place in the herbaceous border. The different colours (of which both single and the double varieties can be obtained) are yellow, white, lilac, rose, crimson, and purple. The double varieties are the most difficult to grow, and inexperienced cultivators frequently lose them. They require good deep loam, and ought not to suffer from want of water in summer; indeed this is a frequent cause of failure. The plants are also smothered by others which are in full growth, and the crowns have not a good chance to ripen. Of Primula Auricula, the hardiest varieties are excellent border plants, and should be grown for the distinct colours of the flowers, which are also highly fragrant. P. cortusoides is a pretty border plant of small size, and succeeds admirably in sheltered positions. It makes an excellent bed for the spring garden. I had round a small bed a row of it which withstood a very severe winter, and formed a perfect mass of purplish lilac flowers, which are borne on rather long slender stalks well above the foliage. It flowers in April. P. farinosa and P. scotica are very interesting and pretty plants, natives of Britain. The "queen of Primroses," P. japonica, and its varieties will be a new and highly ornamental feature for our borders. Its handsome pyramidal spikes are very distinct and ornamental.

The different species of Gentians, with their distinct and striking funnel and bell-shaped flowers, are highly desirable for cultivation in the herbaceous border. Gentiana acaulis, a lovely species, fails in many places. I think a common cause of failure is the want of moisture at the roots. I plant it in deep soil, and mix a good portion of gravel amongst the loam. G. verna is a very free-bloom-

ing deep blue species which flourishes in ordinary garden loam. G. gelida throws up stems from 9 inches to a foot high, with five or six light blue flowers. I only grow these three sorts, but others are equally pretty. G. bavarica and G. Pneumonanthe should also be grown. Lithospermum prostratum, a trailing plant with deep blue flowers, and a continuous bloomer, is not particular as to soil. Eranthis hyemalis, Winter Aconite, opens its pretty deep yellow flowers with the Snowdrops, and is much admired.

The Hepaticas, red, white, and blue, double and single, and the five-lobed species H. angulosa, with its very pretty sky-blue flowers, must occupy a place in the front rank. Some of the dwarf-growing Campanulas form perfect masses of white and blue bell-shaped flowers. Of the dwarf-growing species may be enumerated C. carpatica, blue and white; C. Barrellieri, blue; C. Elatine, blue; C. garganica, blue and white; C. turbinata, blue and white. Many of the trailing species are excellent for basket and vase work. Then, who would be without the Wood Anemone, A. nemorosa, and its varieties, in their gardens, and its lovely companion A. apennina? also Scillas of the different early spring-flowering species, such as S. amœna, S. bifolia, blue, white, and rose-coloured, and S. sibirica or præcox, which flowers in February? The summer-flowering species are not so well known as they ought to be. Of S. peruviana, white and blue, the blue is by far the finest, and an excellent species for pot-culture; the plant is hardy, but it will not continue to flower if planted permanently in the open border.

Of taller-growing plants for back rows we have an abundance to select from. The autumn-flowering Phloxes are very sweet and effective. Numerous fine varieties have been raised from P. pyramidalis and P. decussata. Since I have lived in the neighbourhood of London I have seen but few of the first-named; they do not succeed well here, and the decussata section are far preferable to them; but in Scotland those of the pyramidalis section are cultivated with much success, and are preferred to the late-flowering sorts. A continuous succession of robust plants must be kept up by striking a batch of cuttings every year. As soon as the young shoots are 2 inches in length they may be taken off and inserted in small pots; if this be done early in spring the plants will flower well the first year, but two-year-old plants are the best for back rows in the herbaceous border.

Delphiniums are exceedingly showy, and in every respect well adapted for planting in the background; they are of various heights, from 2 to 5 feet. The varieties, both double and single, are numerous. I will name only two which ought to be in every garden—D. formosum, deep purplish blue, and D. Madame Henri Jacotot, bright sky-blue. They are easily propagated by dividing the roots.

Pentstemons are also very useful for making a continuous display early in autumn; they are easily propagated from cuttings, and many fine varieties may be raised from seeds. Seedlings are the best for ordinary border purposes. The plants throw out numerous side shoots, which are very useful as cut flowers.

Aquilegias, or Columbines, cannot be dispensed with. Some of the species are very striking and effective, all of them make a distinct feature in a well-arranged border. A. vulgaris, the common Columbine, and its numerous varieties are well known and appreciated in cottage gardens, flowering in May and June. Of the species not so well known, but well worthy of cultivation, are A. alpina, A. cærulea, A. glandulosa, and A. Skimeri.

As a striking contrast to the above we have the brilliant scarlet colour of the tall-growing species of Lobelias, L. splendens and L. fulgens. These elegant plants are not hardy in every position out of doors during winter, but with a little protection they may be wintered out of doors in dry borders. Damp is their worst enemy; I have seen plants of these tall-growing Lobelias lifted in autumn and potted, yet the greater number of them died during winter from damp. In the case alluded to the plants were overpotted. Small pots ought to be used, and the potting material should be light sandy loam, with some leaf mould and pieces of charcoal added to it. The pots may be plunged to the rim in a cold frame, or placed on shelves near the glass in a heated structure. The plants are increased by division.

As a distinct feature, graceful and elegant, some of the Spiræas should be cultivated. S. palmata, a recently-introduced species from China, is one of the most distinct and beautiful of herbaceous plants; nearly all the species have white flowers, or white tinged with rose; the inflorescence of S. palmata is quite crimson, and freely produced. S. Ulmaria, the common Meadowsweet, of which there are three or four distinct forms, one with double flowers, is much admired. S. Filipendula is a free-growing species with creamy white flowers, and of vigorous habit.

Many more interesting and beautiful herbaceous plants may be named; and the border, if a proper selection has been made, will contain something in flower nearly all the year round; and except for a few—a very few indeed—of the more delicate species, no glass protection is necessary. Nearly all the tall-growing species enumerated require deep, moderately rich loam 2 feet deep at least. It ought to be remembered that a deep highly-cultivated soil is the best for nearly all of them, and the plants will require but little attention as regards watering in such soils. There is one objection which may be urged against having a border composed entirely of herbaceous plants, and that is, when the spring-flowering plants die down the borders have a bare and patchy appearance. In this case some kind of bedding plant may be put in, taking care not to injure the dormant roots of the permanent plants.—J. Douglas.

PLANTS THAT ENDURED 52° BELOW FREEZING.

I NOTICE that your correspondent "Experto Crede" mentions the satisfaction he has had in his hardy Cactuses. In addition to those he writes of, the Opuntia vulgaris of our Northern States, quite common in our neighbourhood, is extremely hardy. The flower is of considerable size, and, to my taste, very beautiful, being of a clear delicate yellow. However, what I chiefly wish to say is that I have from the far-off Rocky Mountains three distinct members of the Cactus family, all of which stood out entirely unprotected during our last winter—a winter severe almost beyond example. These Cactuses endured a cold of at least 20° below zero—52° of frost! They were not in the slightest degree injured, and are now growing with the utmost vigour. So far only one has flowered with me. This plant seems to belong to the Mammillaria section. The flower is about 1½ inch across, and of a blush colour.

It may interest some of your readers to know, that among other plants which endured in my garden these 52° of frost, may be mentioned Yucca filamentosa variegata, Acorus japonicus variegatus, Lilium auratum in all sizes, even down to bulblets no larger than a pea, the varieties of Lilium lancifolium, and the very lovely Californian Lilium Washingtonianum. Sciadopitys verticillata is also thoroughly hardy under the above-mentioned amount of cold.—George Such, *South Amboy, New Jersey, U.S.A.*

[Mr. Such is in business as a florist; we rejoice over such communications, and we hope to hear from him again and again.—Eds.]

THE GLADIOLUS DISEASE.

An elaborate paper has appeared in the *Gardeners' Chronicle* by "R. C. T.," who has collected all the evidence that has been brought forward on the subject, dismisses as inconclusive all the suggestions, ideas, notions, that have been given on the subject, and, enraptured by a visit to Mr. Kelway's, launches us into a charming sea of certainty and clearness, attributing the disease to exhausted bulbs. I have, as allusion was so frequently made to myself in the paper, briefly replied to it, reserving a fuller statement of my reasons for dissenting therefrom to my own proper sphere, for "every cock likes to crow on his own mixen."

There is an old Latin saying, "*Omne ignotum pro magnifico*," of which I heard a very good equivalent in Ireland the other day—"Cows in Connaught have very long horns." I have never seen Mr. Kelway's collection in bloom, and I am quite sure I have missed a treat, for the specimens which he exhibits at our London shows clearly point him out as our foremost cultivator; but if I am called on to believe that Mr. Kelway has no diseased bulbs, or, if any, a very small number, I must decline to do so. It is said of Beau Brummell, that once when a friend was visiting the poor king at his toilet, and when he had succeeded in adjusting one of those marvellous neckties which made him the leader of fashion, that he saw a heap of some height in the corner. "What are these?" "Oh! they are only my failures." And as the swells who saw him that day admired his tie but never saw the heap he had spoiled, so

probably "R. C. T." saw none of the diseased plants, which, if Mr. Kelway were wise, he would treat as my friend M. Souchet does—ruthlessly pluck them up, so that in his ground two diseased bulbs are a rarity.

The astounding discovery which "R. C. T." has made is, that the Gladiolus disease is occasioned by the exhaustion of the bulbs; that we receive them, perhaps, after they have grown for many years and borne seed; and that hence, although they may bloom well, it is but to wither and die; and that the disease is more prevalent amongst imported bulbs than home-grown ones. Both of these discoveries are, unfortunately, baseless. "R. C. T." seems to be in happy ignorance of the fact that it is not the same corm which is planted from year to year, that the corm dies, and from it are produced those of the following year. He might say, although that is true, yet they are from an exhausted bulb, but he recommends the bulbs which have been grown from spawn produced in England; but these are the products, according to his notion, of exhausted bulbs also. And when "R. C. T." says no one thinks of growing Dutch bulbs, such as Hyacinths, Tulips, &c., a second year, he is evidently in a muddle. The Hyacinths we receive are the same bulbs which have been grown for four or five years especially for us, and are identically the same bulbs. It is generally supposed that these are then exhausted, but this I believe to be a fallacy; at any rate, I saw with my brother-in-law, Mr. Tandy, of Dublin, the best grower of Hyacinths I know, a bed in which the foliage was as vigorous and the flower-stems as strong, as from any imported bulbs, and he assured me that he had had as fine spikes of bloom as many of those he exhibited, and this bed was made of the bulbs grown in pots the previous year. As to Tulips, they only require to be harvested with care, and you can get as good blooms as from any imported bulbs, and this year after year, as I can testify from my own experience.

As to the French bulbs being more liable to disease than home-grown ones, that again is, as far as I know, utterly untenable. I have every year had some, and can say that they are not one whit more liable to disease; indeed I find it about equal amongst the bulbs whether of home or foreign growth. But when "R. C. T." speaks of the dazed folly of the grower gloating over his large corm in happy ignorance that it is an exhausted bulb, surely he must fancy amateurs know very little about it, for there is not one of us who does not prefer a middle-sized bulb to a large one—not on this account, but because it is the more liable to throw up two or three stems, and thus to detract from the strength of the bloom. Then, if the disease be attributable to exhaustion in the bulbs, how can "R. C. T." deal with the new varieties? There can be no exhaustion here; for M. Souchet is of course anxious to get up his stock, and as soon as ever he can obtain a sufficient quantity of bulbs large enough they are sent out, and yet in these the disease appears as well as in the bulbs of older varieties.

Evidently, too, "R. C. T." would imply that manure used in excess has to do with this malady, and attributed my loss a few years ago to this. Now I have never manured to excess, and both last year and the year before no manure came near the bulbs. As if to show how utterly inexplicable the whole thing is, I may mention this simple fact: In taking up my bulbs last autumn I found some so diseased that I did not even think them worth the trouble of removing. My gardener's little boy picked up three of them and planted them in his own garden, and to-day I have seen two of them with fine healthy-looking shoots. I shall carefully watch them, and certainly, if they do anything, shall never again throw away diseased bulbs of any valuable sort. If they are dried, it is hopeless, but there is apparently from this case, and from what occurred in my own garden once before, a chance that if at once planted they may survive.

Some persons have recommended that Gladioli be left in the ground all the winter. Having a bed of varieties I did not care much about, I did so last autumn, and the result is that about one in five is alive; the rest have perished, probably from worms and wet, certainly not from frost.—D., *Deal*.

Dendrobium Dalhousianum.—In your report of the Show held by the Blackburn Horticultural Society (in your issue of June 6th), your correspondent was afraid to say how many spikes the Dendrobium Dalhousianum, exhibited by Capt. Shaw, had on it; I now beg to supply that information—viz., forty-three spikes, many with fourteen flowers on one spike. It had about 440 individual flowers, four hundred of which were open all at the same time. The pseudobulbs are 6 feet long, nine of which were grown during the season of 1870. The flowers were 4½ inches across. It is altogether a noble plant when seen in such condition as it has been the last three weeks.—R. B. Varley, *Gardener to Capt. Shaw, High Field House, Blackburn*.

A SMALL ELEVATED GREENHOUSE.

After pondering the matter over, on which notes appear at page 468, I thought I would see what an enthusiastic friend of mine was doing with a proposed elevated greenhouse.

There will be a wash-house, &c., beneath, and the greenhouse will be entered from the second floor. Most likely soil and other materials will be carried up from the outside by means of steps. He has as yet only had the floor made ready; the bottom of the floor is of boards in the usual way. Two holes are left for pipes to take away all water; the opening of the pipes is to be beneath the level of the floor. It may help "Mrs. St. C. J." to know how he proceeded, without giving his reasons for doing so. The floor was painted over thinly with heated tar, holding a little oil; on that was spread a layer of brown paper, which was painted in the same way, and on that was placed, with the tar oozing through, a layer of flat house tiles, the bottom side resting on the freely-tarred paper. The upper sides of the tiles were then well damped, and covered first with a layer of Portland cement, and then, when rather dry, that was damped, and a layer of cement and sand about three-quarters of an inch thick. This formed a firm floor for walking on, and no damp would pass through it. On such a floor "Mrs. St. C. J." might form her beds of earth, but there should be a pipe to take away drainage. Our friend says, when he gets richer after the house is up, he may floor it with ornamental tiles fixed on the cement. The house will command a view of a small flower garden. The house is one in a street of a town; already, in addition to other things, he has a row of the finest Tricolor Geraniums on each side of the walks, each neatly edged. To my knowledge, many of these keen enthusiasts, with but a small income, spend more in one year on plants for their little places than possessors of gardens employing a dozen men spend in several years. The owner of this place intends to keep all his plants in pots, with sufficient walking room, and heat either by stove or by a pipe from a small boiler in the wash-house.

Another house, about 15 feet above the ground level, has the floor tarred, and rough sanded on the top of the tar; no moisture has gone through to the boards, but the latter had to be tarred two months previous to use. In another house, some 12 feet from the ground, the boards had been covered with pitch, and when dry covered with half an inch of spar and washed gravel, none of the gravel being larger than horse beans, and most of it not much larger than peas. When it became a little dusty and worn it was washed, and a little fresh added. In this case the boards had been used for a flooring for some ten years, and the pitch had kept the damp from acting on them. In these cases there was no planting-out, but all the plants were grown in pots, vases, and baskets. In the last case the damping of the spar and gravel was of much benefit in hot weather. I found the idea of oilcloth on boards was much disapproved of—the damp gets beneath it, it moulds, and soon becomes unsightly, useless, and not pleasant to walk on. With care the boards alone would do. But these are mere hints, and I should be obliged for the benefit of many if they were supplemented. —R. Fish.

EFFECTS OF MAY FROST IN IRELAND.

In your Journal of May 23rd, in "Notes and Gleanings," I see some happy individual commenting on the old proverb—

> "When frosts come in May
> There 's the devil to pay,"

adding, "However, they have come this year, and we have not heard of any special damage." Now, just let me tell you of some effects of the frost on the night of the 18th of May last in this, the west side of the county of Wicklow—the east side did not probably suffer so much, being near the sea. First, the Potatoes were all cut off to the ground; half-hardy annuals, such as French Marigolds, exposed, were entirely killed; Apple trees suffered much; and Gooseberries could be had ready boiled (in appearance) on the trees. Hardy Azaleas were cut-off both in blossom and leaf; the blooms of hardy Rhododendrons were either melted away if fully out, or if only

bursting open, were dwarfed and destroyed; the latest kinds, even, will not, I fear, show good trusses this season; the young shoots are all cut-off. To this injury there is one curious exception in the case of an old early white kind of Rhododendron, which has been in bloom since the 20th of April to the present time, June 6th. Planted in several places this is entirely unhurt. The Geraniums, &c., put out "to harden" in shelter, were much injured in the foliage, and have not yet recovered. This came from neglecting the proverb of an old gardener (I like old gardeners' sayings), the wisdom of which I have seen from several years' observation. Some people say, Do not put out your bedding plants until the middle of May; his rule was—

"Your bedding plants are sure to come to grief
If out before the Ash tree is in leaf."

He had another rule for himself and children, a very good one, too—

"Ne'er cast a clout
Till May is out."

Having spoken of the difference between the climate of the two sides of this county, I may mention that here, the west side, the tenderer Rhododendrons, such as The Grand Arab and Vestatum coccineum, do not succeed, except in shelter; while on the east side I saw this year in the end of March Rhododendron barbatum in splendid bloom, and since that Rhododendron Roylei also blowing in the open air. The Ash tree, too, the gardener's index as I may call it, is full in leaf there long before it is so here.—M. C. D.

ROYAL HORTICULTURAL SOCIETY.

JUNE 19TH.

A MINOR Show, but well supported, notwithstanding the fact that exhibitors are holding back for Birmingham, notwithstanding the concurrence of the Royal Botanic Show. The Exhibition was held in a tent on the croquet ground, and though by no means large it was a pretty little enjoyable Show, and attracted many leading horticulturists to it.

In the amateurs' class for six Zonal Pelargoniums, not variegated, only one collection was shown for competition, and that came from Mr. Weston, gardener to D. Martineau, Esq., Clapham Park. It contained good specimens of Amelina Grisau, Herald of Spring, &c. Mr. Catlin, gardener to Mrs. Lermitte, East End, Finchley, sent a very fine half-dozen; Lord Derby, scarlet, Virgo Marie, white, and Pioneer, salmon, being particularly good. These, however, not being entered, were not eligible for competition, otherwise they would decidedly have been first. Mr. Weston, therefore, was the only prizetaker. In the nurserymen's class Mr. Wright, Turner Road, Lee, was the only exhibitor, taking a second prize with specimens fairly grown and bloomed. Mr. Wright was also the only exhibitor of Double-flowered Pelargoniums, and took a second prize.

Of variegated Zonals there was a better display, and the competition was very close. The best six in the amateurs' class came from Mr. Watson, gardener to T. H. Bryant, Esq., Airlie Lodge, Surbiton Hill, and consisted of evenly-grown, well-furnished plants of Sir R. Napier, Sophia Dumaresque, Lady Cullum, Italia Unita, Caroline Longfield, and Prince Silverwings. Second came Mr. T. Welch, Hillingdon, with well-grown and finely coloured plants of Sir R. Napier, Smith's Defiance, Sophia Cusack, Lady Cullum, Sophia Dumaresque, and Mr. Rutter. Excellent plants, mostly of kinds already named, came from Mr. Goddard, gardener to H. Little, Esq., Twickenham and were third. In the nurserymen's class Mr. Pestridge, Greenway Nursery, Uxbridge, was first with finely coloured plants of Lady Cullum, Italia Unita, Charming Bride, Sophia Cusack, Mrs. Headley, and Achievement. Mr. Stevens, Ealing, was an excellent second; and third came Mr. Turner, of Slough.

For six Fuchsias no first prize was awarded. Mr. Weston, gardener to D. Martineau, Esq., had a second prize. In the nurserymen's class Mr. Wright, Lee, was first with plants in fine bloom, consisting of Excelsior, Gipsy Queen, and another dark kind; Mrs. Marshall, Starlight, and Conspicua, light kinds. In the open class for twelve the first prize was withheld, and a second was given to Mr. Weston. Mr. James, gardener to W. F. Watson, Esq., Redlees, Isleworth, sent a very fine collection not for competition. These were in profuse bloom, Avalanche and Starlight being especially fine.

Baskets of plants arranged for effect were exhibited by Mr. Hepper, gardener to C. O. Ledward, Esq., The Elms, Acton; Mr. Cole, Ealing Park, and Mr. G. Wheeler, who received prizes in the order named. Mr. Hepper's basket would have been much more effective if it had been placed beneath the eye instead of above it.

Palms were shown in good force. In the nurserymen's class or eight, Mr. Williams was first with noble specimens of Latania borbonica, Chamærops Fortunei, Sabal Blackburniana, Thrinax elegans, Chamærops humilis, and Calamus asperrimus. Mr. Bull, of Chelsea, had a second prize for Areca Verschaffelti, Acanthophœnix crinita, Zalacca Wagneri, Geonoma pumila, Euterpe edulis, Calamus adspersus, Areca lutescens, and Dæmonorops melanochates. Messrs. Rollisson, of Tooting, were third. In the amateurs' class for six, the prizes went to Mr. I. Hill, gardener to R. Hanbury, Esq., The Poles, Ware, for a nice collection in excellent condition; to Mr. Cole, gardener to J. S. Budgett, Esq., Ealing Park; and to Mr. G. Wheeler, gardener to Sir F. H. Goldsmid, Bart., Regent's Park. Mr. Hepper's basket was the most effective, and would have been more so had it been placed lower down. Messrs. Dick Radclyffe & Co. also exhibited.

For twelve Ranunculuses, the Rev. H. H. Dombrain, Westwell Vicarage, Ashford, and Mr. Hooper, Widcombe Hill, Bath, were respectively first and second. For the Metropolitan Floral Society's prize for twenty-four Mr. Hooper was first, and the Rev. H. H. Dombrain second. Mr. Tyso, Wallingford, sent a fine collection not for competition. Prizes were likewise offered by the Metropolitan Society for stands of twenty-four Pinks; they were taken by Mr. Turner, Slough, and Mr. Pizzey, gardener to Sir E. Perry, Bart., Fulmer, Slough; the third prize going to Mr. Hooper, Bath.

Mr. Williams sent a good miscellaneous group, containing a fine example of the beautiful Todea superba, Anthurium Scherzerianum, Orchids, Palms, &c. Messrs. Rollisson also staged a group of Orchids and stove and greenhouse plants.

ERRATUM.—In the report of the Show held June 5th, Hibiscus Rosa-sinensis miniatus semi-plenus, which obtained the first prize as the best new plant in flower introduced by the exhibitor, and not in commerce, was ascribed to Messrs. Veitch instead of Mr. Bull.

FRUIT COMMITTEE.—G. F. Wilson, Esq., F.R.S., in the chair Mr. Douglas, Loxford Hall, Ilford, sent a dish of fruit of Earley's Defiance Tomato. Mr. James Stott, Alnwick, sent enormous stalks of a seedling Rhubarb, which was considered too coarse to receive any distinction. Messrs. Sutton & Sons sent a plant of their new Pea "First of All," the consideration of which was adjourned to the meeting at Chiswick, where this variety is at present growing in the collection.

FLORAL COMMITTEE.—W. Marshall, Esq., in the chair. Mr. Denning, gardener to Lord Londesborough, Grimstone Park, sent a magnificent group of Orchids, for which he received a cultural commendation, also a fine specimen of Epidendrum nemorale, for which a similar award was made. From Mr. Wilson, gardener to W. Marshall, Esq., Enfield, came Phajus Marshalliæ with large pure white and yellow flowers. This received a first-class certificate, as also did Cupressus Lawsoniana lutea with golden variegated foliage, a very ornamental variety.

Messrs. Downie, Laird, & Laing, Stanstead Park Nurseries, had first-class certificates for Pansies Mrs. Neilson, violet edged with white; Miss McKen; Lady Ross, and James Neilson, maroon and yellow.

Messrs. Barr & Sugden, Covent Garden, exhibited fine varieties of Lilium Thunbergianum, especially one called incomparabile; and from G. F. Wilson, Esq., Weybridge Heath, came Lilium californicum with glorious crimson-tipped and spotted flowers. Messrs. Paul & Son sent Rose Annie Laxton, of a deep rose-colour; Mr. Earley, Valentines, some fine Foxgloves; Mr. Hooper, Bath, Pansies; Mr. Green, gardener to W. Wilson Saunders, Esq., a hybrid Streptocarpus, between Rexii and Saundersii, with lilac flowers, as well as other interesting plants; and Mr. Williams, Holloway, had a first-class certificate for Pteris Applebyana, a pretty-crested form.

Mr. Welch, Hillingdon, had a first-class certificate for Tricolor Pelargonium Magdala, one of the Golden section, with finely-coloured foliage, and Mr. C. Edmonds one for Mrs. H. Little.

Dr. Denny, Stoke Newington, exhibited a specimen of Pelargonium Silver Gem, not, however, large enough to judge of, and Messrs. Rollisson a pretty Heath, by name Erica jasminiflora roseo-tincta.

ROYAL BOTANIC SOCIETY'S SHOW.

JUNE 19TH AND 20TH.

THE second of the principal Shows of this Society opened yesterday, and will be continued this day. That it is equal to the Regent's Park Shows of former years we cannot affirm; that it forms a pretty and effective scene—a pretty picture, that without contradiction we can fearlessly say. There has been a great falling-off not only in the number of exhibits of plants, but also in those of fruits. Of the latter there cannot be one-third of the quantity exhibited in past years. Why is this?

In stove and greenhouse plants Mr. Baines, gardener to H. Micholls, Esq., Southgate, is as usual to the front, showing splendid specimens of Statice profusa, Ixora coccinea, Roella ciliata, and Dipladenia amabilis; Mr. Ward, gardener to F. G. Wilkins, Esq., Leyton, has a very fine collection, and takes the lead for Show Pelargoniums, and for twelve Orchids. Mr. Hill,

gardener to R. Hanbury, Esq., Poles, Ware, is first for six Orchids, and shows fine specimens of other subjects. Mr. Williams sends fine Palms; and Mr. Parker, of Tooting, has fine collections of herbaceous plants; Messrs. Jackson of stove and greenhouse plants, as well as of Heaths, of which there are several good exhibitions; Messrs. Paul & Son of cut Roses; Mr. Turner, Pinks. Mr. Williams, Mr. Bull, and Messrs. Downie and Co. sent groups of plants, many of which, being recent, had certificates.

Of Fruit, Mr. Burt, gardener to H. B. Mildmay, Esq., Seven-oaks, has excellent Black Hamburgh Grapes, taking a first prize, also a similar award for baskets; Mr. Stapleton, Spring Grove, being second. Pines, though few, are good, especially Mr. Benham's and Mr. Baily's Queens. Mr. Jack, gardener to the Duke of Cleveland, Battle Abbey, has excellent Royal George and Bellegarde Peaches; Mr. Brown, Gopsall, Royal George and Grosse Mignonne.

COTINUS AMERICANUS.

This rare tree was first discovered by the English botanist, Nuttall, in the autumn of 1819, in Arkansas, on the high, broken, calcareous, rocky banks of the grand river, a large tributary of the Arkansas, at a place then known to the voyagers by the name of "Eagle's Nest." In this rocky situation it did not rise beyond the height of a shrub, and had a yellow, close-grained, fragrant wood.

Nuttall afterwards described it, and he also has given a figure of a fruiting specimen in the fifth volume of the "North American Sylva," page 70.

In the month of March of 1841, when on a botanical tour, we found this Cotinus on the hills south of Huntsville, in Alabama, just before arriving at the ferry across the Tennessee River. It was there a large shrub in flower and fruit, the long hairs of its infertile panicles giving it a gay and beautiful appearance, resembling much the Venetian Sumach or Smoke Tree (Rhus Cotinus), common in cultivation. It was very common among the rocks near the summit of the hill just before we descended into the river valley. North-east of Huntsville, on our way to Salem, in Tennessee, soon after crossing the state line, we stopped at a farm house and spent part of a day in the woods, where we again saw the large-leaved Cotinus as a small tree, some of the largest about a foot in diameter, and from 25 to 30 feet high, the bark of the trunk and larger limbs of a light grey, rough and furrowed. We ascended one of the trees after specimens, and found the branches very brittle and easily broken, the broken stems exuding a yellow sap and a strong odour, which to us was not pleasant, although described as fragrant by Nuttall; but the difference may have been caused by the season—he found it in the fall and we in the early spring, when the sap flowed freely. On the trees in Tennessee its leaves were large, some being 6 inches in length by 3 and 4 in width, smooth, and of a light green above, paler beneath, and pubescent along the veins. We think this tree has not been noticed by any botanist except as we have stated—hence it must be very rare and local in its habitat.—(*American Gardener's Monthly.*)

CAPILLARY ATTRACTION OF SOILS.

Capillary attraction is so constantly and powerfully at work in all moist soil, that it is highly important it should be clearly understood. The term, derived from *capillus*, a hair, is significant of the fineness of the tubes or passages in which its action takes place. It may be described as a property of almost all liquids to ascend or spread by attraction. In undrained tenacious land the water, as it enters the soil, sinks downwards till it reaches the level of gravitation, and although it finds no passage by which it may escape, yet, strictly speaking, it cannot be said to be at first altogether in a quiescent state, as it rises thence by attraction or capillarity to heights limited by the quality and condition of the soil. In pure clay it has been found to attain a mean height of 3 feet, this apparently being its maximum in any soil, while in soil of a more open texture it does not rise to more than one-third of that height. A knowledge of these facts is of great importance in making drains, the object of the scientific drainer being two-fold—namely, to rid the soil of superfluous moisture, and to keep the water-table or level of supersaturation so far beneath the surface that a few inches may be entirely free from the effects of capillary attraction, which then, instead of proving hurtful, is of benefit to the crops, especially in a dry season.

The following fact, from its bearing on the subject, is not without interest. One side of the cutting through the bed of sandstone gravel to which reference was made at page 439, is dressed to an angle of 60°, and is fully exposed to the sun, yet the whole of the gravel and soil above the layer of blue clay continues wet even upon the sloping surface or face after several weeks' exposure in bright clear sunshine, while that part below the clay dries in a few hours, thus causing the bare slope to present a singular, and to the casual observer an unaccountable, appearance. Now it is very certain that the surface of a slope so thoroughly exposed to the drying action of the sun's rays must be subject to excessive evaporation, so that this is a noteworthy demonstration of the power and persistency of capillarity. Nor is this by any means a solitary example, for I have seen others even more remarkable, where the clay was so irregularly disposed that in some parts it was not more than 18 inches below the surface, thence descending abruptly to a depth of 5 or 6 feet, and so rising and falling in its entire course through the gravel bed, the irregular and yet connected line being quite apparent in dry weather by the uniform wetness of the whole of the substance above it.—Edward Luckhurst.

A PROFITABLE CALIFORNIA FRUIT RANCH.

Charles Nordhoff gives the history of a successful fruit ranch near Stockton, U.S.:—

The ranch, whose particular history I am to relate, was purchased twelve years ago by the present owner for $5500. It was at that time in part under cultivation, with orchards old enough to have trees in bearing. The house in which the owner has lived ever since was already built. The ranch contains a section 640 acres, with a frontage of a mile on the river. This whole frontage, which makes about 60 acres, is in fruit of various kinds. Of this, 15 acres are in Grapes, 7 in Pears; the remainder is divided between Apples, Apricots, Cherries, Plums, Peaches, Quinces, and Figs. Two years ago the receipts of this ranch from all its products aggregated $12,000. This year, though the yield is greater than ever before, the price of fruit being so much less, the net profits will not exceed $7000. I shall record the items that go to make up this amount, and begin with the Pears. A box of Pears contains 40 lbs. The shipping of these was commenced the last of May. The Madeleine variety was the first sent to market. Of these, five hundred boxes were sold at $4 per box, the fruit at first selling at 7 cents per pound. Next came the Bloodgood and Dearborn Seedling. There were sixty boxes of these. At first they sold for $2.50 per box, then came down to $1 as the season advanced. The Bartlett came next. Of these a car-load, 420 boxes, was sold to go east, at $1.50 per box. In New York, they brought $6 per box. These boxes contained 60 lbs. Beside these, there were two hundred boxes of Bartletts sold in San Francisco at $2 per box.

The White Doyenné Pear came next. There were fifty boxes of these, which sold at $1 per box. Then came that little jewel of a Pear, the Seckel. Three hundred boxes of these sold at an average of $2 per box. Two hundred boxes of winter Pears, at $1 per box, and one hundred boxes sundries, not included in the previous statement, make up the list of Pears.

Cherries are generally very profitable. The yield per ton, in money, is greater than that of almost any other fruit. But through misapprehension in regard to the nature of the soil, which proved to be alkali, the Cherries on this ranch proved almost a failure. Had the soil been as supposed, the profits of the Cherry orchard would have been some $4000 per annum. As it is, only $200 were received this year, though last year the receipts were $500.

There is something very strange about this alkali soil. In the Pear orchard there are rows of trees extending all the way through, in which the trees are dwarfed to half the size of those that grow on each side of them, and the Pears that grow on these trees are so exceedingly bitter that no use can be made of them. There happened to be a streak of alkali running through the soil just there.—(*Horticulturist.*)

Castle Bromwich.—Let me advise all the lovers of an old English garden who may visit Birmingham to go out by train to the Castle Bromwich station, and then walk up to Lord Bradford's place at Castle Bromwich. They will see such hedges of Box as cannot often be seen, and terraced walks from which one expects to see Watteau-like figures issuing; but here, alas! too, the bedding-out rage has interfered, and

a parterre in the front of the house, which would be glorious if laid-out as an old herbaceous garden, is made to do duty in bedding-out. But despite this, the place is one well worthy a visit; and if after this they will walk on to The Cedars, they may see, if they are lovers of the Rose, such pegged-down Roses as, I believe, can be seen nowhere else. Mr. Perry has been most successful in thus growing them, and when in bloom they are a grand sight.—D., *Deal*.

DENDROBIUM LOWII.

A SPECIMEN of this lovely Dendrobe is now flowering here (Fernichurst). It has produced from the top of a sturdy growth 14 inches high a cluster of nine of its rich flowers, which present a very peculiar appearance. As yet I believe it is one of the rarest of the genus, so that probably but few of our amateur cultivators have had the opportunity of seeing it—at least, when in flower.

Dendrobium Lowii.

The plant is somewhat distinct in its growth; the stem, together with the leaves, is covered with minute black hairs, giving the whole a very dark green appearance. The flowers are produced near the top of the growth; they are of a bright yellow; and the lip, which is also hairy, is richly marked with reddish veins; the hairs are also red at the base, tapering off to yellow. This is certainly one of the most beautiful of Orchids, and when obtainable should have a place in all good collections. To procure it, however, seems to be the greatest difficulty. I only remember seeing it in flower once before, some three years since, in the rich collection then kept up by W. W. Buller, Esq., of Strete Ralegh, near Exeter, and then only with three or four, or at most five blooms.—C. J. WHITE.

AQUILEGIA GLANDULOSA.

IT is a beautiful plant, but I would caution your readers who live in the south of England against hoping to do anything with it in the open border; they will find it will not succeed. I have had plants from all quarters, and have raised seedlings, but they dwindle away under every treatment. I speak of Kent. Will Messrs. Carter be kind enough to say where the flowers spoken of came from, or rather where were they grown? I can strongly recommend Aquilegia cærulea and A. spectabilis.—A. R.

ROYAL HORTICULTURAL SOCIETY'S EXHIBITION AT BIRMINGHAM.

WE publish the ground plan to-day of that part of the Lower Grounds of Aston Park in which is to be held the Exhibition, which commences next Tuesday. It will be a useful guide for visitors. No better place could have been selected as the locality for the Exhibition. It is a portion of the grounds attached to the Holte Hotel, respecting which a few years since we published the following, and which we need not now alter or add to:—

The proprietor of these grounds is a spirited and genial man, wonderful in resource, and prompt and decided in action, by name Mr. H. G. Quilter. Some few years ago (having, as the manager of the Aston Park Estate under the corporation of Birmingham, obtained some insight into the recreative requirements of a great industrial community), he became the proprietor of about 36 acres of the Lower Grounds of the Aston Park Estate, with the idea of making it a place of popular resort and recreation. His design was to provide, for the masses of population who inhabit Birmingham, sources of recreation that, while they should be broadly applicable to the varying tastes of an enormous community, should also exclude every coarse feature which would be likely to wound the sensibilities of the most fastidious social reformer. This, by dint of untiring energy, he has established in one of the immediate suburbs of Birmingham, scarcely more than two miles distant from the busy centre of this vast iron metropolis; and by means of lakes for boating and fishing (one being exclusively retained as an ornamental water for various species of waterfowl, &c.,); by providing archery, cricket, and croquet grounds, and extensive bowling greens; by high-class concerts, by private theatricals and dancing under the strictest regulations; by the daily attendance of a first-class band of music; and lastly, and not least of the category of attractions, by the introduction on an extensive scale of the best modern features of spring, summer, and subtropical gardening, combined with shady walks, grass plats, specimen ornamental trees, clumps of Rhododendrons, &c.

The following memoranda will probably be found useful to many of our readers:—

1, Exhibitors and others desiring private lodgings near to the show ground should write at once to Mrs. Quilter, Lower Gronnds, Aston, Birmingham, saying what accommodation they require, and enclose stamped directed envelope for reply. Mrs. Quilter keeps a register of houses in the neighbourhood where lodgings can be had.

2, The following are the names and addresses of temperance and other hotels where good and inexpensive accommodation may be had:—Corbett's (Temperance), Paradise Street; Wilkins' (Temperance), Moor Street; Waverley (Temperance) Hotel, New Meeting Street; Knapp's, High Street; Bullivant's, Carr's Lane; and Suffield's, Union Passage. There are innumerable respectable inns in Birmingham.

3, The principal hotels are:—The Great Western, at the terminus of the Great Western Railway; the Queen's Hotel, at the terminus of the London and North-Western and Midland Railways; the Hen and Chickens Hotel, New Street; the Stoke Hotel, Old Square; and the Swan Hotel, New Street. These are all first-class houses.

4, Exhibitors who require horses to convey their vans to the show grounds should at once communicate to one of the undernamed according to the line they will use, stating on which day and by what train they will travel, and whether they will want one horse or more. If by the London and North-Western Railway, to Mr. Nicholls, London and North-Western Railway, Curzon Street, Birmingham; if by the Midland Railway, to Mr. Pearson, New Street station, Birmingham; if by Great Western, to Mr. G. W. Andrewes, Snow Hill station, Birmingham. If vans as well as horses should be required it must be stated, and some idea of size given. Exhibitors who neglect to write beforehand will not find horses awaiting them. Exhibitors who take only a few boxes with them will find it best and cheapest to hire cabs (two-wheelers), or cars (four-wheelers), to convey them to the Lower Grounds. A plentiful supply of these vehicles will be found at all the stations. The fare for the former is 2s., for the latter 3s.

5, Exhibitors and others will have, free of charge, access to a room in the hotel adjoining the Lower Grounds (which will be

supplied with all the leading London and Birmingham daily papers), for letter-writing, appointments, &c. They will be at liberty to have their letters addressed there, and it is hoped they will find this arrangement a very convenient one. The proper

mode of address will be, Mr. A—— B——, Quilter's Holte Hotel, Aston, Birmingham.

6, The Local Committee have arranged for many of the leading manufactories in Birmingham and district to be open for inspection, free of charge, on production of an introduction from the Local Hon. Sec., Mr. E. W. Badger, who will be on the show ground all the days of the Show. A complete list of these manufactories will be issued in the official catalogue, which will contain a list of exhibitors in the horticultural and implement, &c., departments; a complete list of horticultural buildings, heating apparatus, garden implements, garden furniture, garden engines, vases, and other decorative appliances, wirework, &c., exhibited at the Show.

7, The Show will be opened on Tuesday next, at one o'clock, by H.R.H. Prince Arthur. Holders of tickets will be admitted to the gardens adjoining the show ground at 11 A.M., but none others will be admitted until after 12.30. As soon as the Prince has entered the great Exhibition tent the barriers will be withdrawn, and the visitors assembled will be allowed to enter the show grounds, where at one o'clock precisely an address from the Local Committee will be presented to H.R.H. Prince Arthur, who, after replying, will declare the Exhibition open.

8, At half-past one a public luncheon, at which the Prince will be present, will take place in a marquee in the grounds. Provision will be made for five hundred guests. The luncheon will be of the best possible character, the charge for which, including wines (which are to be of first-class quality), will be 21*s.* for gentlemen, 16*s.* for ladies. Immediate application must be made for luncheon tickets to Mr. A. Forrest, 10, Cherry Street, Birmingham. Prizes amounting to £30 have been offered for the floral decoration of the luncheon-tables.

9, The Horticultural Congress will take place on Wednesday and Thursday, 26th and 27th inst., at four o'clock each day.

10, On Wednesday, Thursday, Friday, and Saturday the Exhibition will open at 10 A.M., and close at half-past 7 P.M., and the ground will be cleared at 8, except on Saturday, when it will close at 6 P.M.

11, On every day except Tuesday an ordinary will be provided at a time to be announced. The charge will be moderate, and it is to be hoped that this arrangement will afford more opportunities for social intercourse than the usual gardeners' dinner. The chair will be taken each day by some well-known horticulturist. A cold dinner will be provided daily for those who prefer it.

12, Ample arrangements as to refreshments generally have been made.

In our next number we shall publish a full and illustrated report of the Exhibition.

We are happy to be able to announce that Messrs. Sutton accede to the suggestion which has been made to them, and will not withhold the special prize offered by them for the best collection of six sorts of Peas in the event of its not including their new late Pea, "Best of All," which may not be ready in time owing to the backward season.

STRAY NOTES ON THE ROYAL HORTICULTURAL SOCIETY'S SHOW AT SOUTH KENSINGTON,

June 5.

In the palmy days of the old Chiswick shows it was often urged in the gardening periodicals of the time, that employers of gardeners ought to afford them the means of visiting one show each year, so as to enable them to see what was going on in the horticultural world. Times, however, have altered since then, and although the London shows have multiplied, they have lost the attraction they once possessed, partly in consequence of provincial exhibitions competing with them, and partly owing to the absence of new or striking productions, or, indeed, owing to such shows following too much in the same track. Be this as it may, it is certain that the metropolitan horticultural shows of the present day do not attract in equal degree the class of visitors who used to throng the grounds of old Chiswick upwards of twenty-five years ago. I remember the crowds that followed a foreign prince—I believe it was Ibraham Pasha—through the tents at one of the shows before the period alluded to, and the glowing accounts of the exhibition that were given in the papers at the time; now, excepting in journals devoted to gardening, the details in the daily papers are often meagre and imperfect. Nevertheless, horticultural shows have their attractions; enthusiastic admirers of fruits and flowers continue still to assemble in tolerable force, their numbers being materially increased by that very numerous class which may be called fashionable loungers or sightseers, and a recent visit to a show at South Kensington enabled me to form some kind of judgment as to how far the objects there exhibited met the general approval of the mass. Some other jottings or criticism may likewise be acceptable to such of your readers as want to know something more than the official details of the prizetakers.

The whole of the exhibition was under canvas, one large tent being devoted to groups of Rhododendrons from an enterprising nurseryman in Surrey; another large tent contained all the plants and cut flowers, and a third and similar one the fruit. The contents of the last-named tent need very little comment, as that has been already made by others, but in general it may be said the Black Hamburgh Grapes were good and well coloured. The other black Grapes were not so good, and indifferently coloured, Black Prince taking a prize; and as this variety generally colours best of any, it ought not to have been so. White Grapes, including some of the largest and best-grown bunches of Muscats, in most cases were not ripe. Golden Champion and Foster's White Seedling were far from ripe. Peaches and Nectarines were very good; but there was a lack of Cherries. Melons it is so difficult to judge, that only those who have the privilege of tasting can give any opinion of their merit; they were not so numerous as I have sometimes seen, nor were there any that I should admire for their appearance, and that is a point of great importance. Strawberries consisted of President, Sir Charles Napier, and British Queen, all pretty good. Pines were not so large as at a September show, and, excepting one Cayenne, they seemed all Queens. Figs were also exhibited, and one grower had sent a dish of Loquats—a fruit not by any means plentiful. Oranges, Lemons, and Citrons were also shown, and not the least interesting of the fruit were specimens of Apples of 1870, 1871, and 1872, those of the first two years being Easter Pippin or French Crab.

Passing on to the large plant tent, I found, on entering, that the ground had been formed into embankments with steps or small terraces on which to place the plants—a plan that receives a much higher degree of praise elsewhere than I am disposed to give it; for although there are many instances in which it answers admirably, and shows off the plants to the best advantage, I think it is not so desirable for displaying the large plants. In most instances the exhibitors of these had found it necessary to prop-up the back of their plants to a degree that made it painful to look at them lest they should topple over. It struck me forcibly at the time that if these large plants could exchange places with the general public, so as to give the latter the higher ground, the plants would in reality look better, and there would be no occasion for that ugly tilting on one side. Besides, the exhibition plants of a pendulous character are so few that there would not be much loss if this were done, and if the plants were viewed more from above there would be less excuse for that very unnatural mode of tying-in and trimming so often met with, and which, in my opinion, spoiled a very fine Ixora with, probably, upwards of threescore blooms; the shoots of this plant had been twisted about in all directions to spread the flowers over the front of the specimen—an unnatural process which I hope to see in a great measure abandoned. Some Azaleas accompanying this plant were less stiff and formal than they usually are, but several other plants were kept in stays. Some there were in which the tying-up contrivance formed the principal object to look at. Much of this, I think, might be avoided if a new arrangement could be made of the ground, forming in places sunken panels for large plants, and others either on the level or slightly raised, as is generally the case. I know I am speaking something very much like treason to find fault with the plant shows of the present day, but I hope to live to see this suggestion carried out, and to see such plants as are capable of supporting themselves without sticks and ties being allowed to do so. A little waywardness of growth and flowering are not so offensive to good taste as the truly artificial mode so often adopted. An open expression of public dislike to such artificial treatment would do much towards securing the exhibition of plants with a more natural appearance, and if it were insisted that only such plants were admissible for prizes, they would be sure to be forthcoming.

Turning to other parts of the Show, I may add that a much more attractive feature (judging by the numbers who lingered over them) was a collection of new plants exhibited by Messrs. Veitch, and certainly there was much to admire in them. Here, again, I was sorry to see the number of flowering plants was very few—in fact, I am not sure if the whole were not there as being remarkable for their foliage. This is unfortunate, as the number of exhibition flowering plants has been diminishing instead of increasing of late years, while those remarkable for their foliage receive additions almost every day. There were certainly promising-looking plants amongst Messrs. Veitch's collection, not the least interesting being some that evidently would become hardy.

I will now advert to another feature—namely, a collection of flowers from bulbous plants exhibited by Messrs. Hooper, of Covent Garden Market; this was one of the gayest objects in the Show, the varieties of Ixias, Babiana, Sparaxis, Iris, &c., presenting almost every imaginable hue, including bright green and a good black. The flowers were all named, but perhaps a little crowded in the stand, and if the beholder could have seen

them all in a growing state it would have been better, as specimens of cut flowers convey no idea of the growth and habit of the plant. For a like reason the collection of herbaceous plants from Mr. Ware, of Tottenham, was shorn of much of its interest, although it contained some good old things as well as new ones. The double yellow Rocket (so called, but not properly so) and the Fraxinella were both there, as well as other favourites. Near to them was a collection of dried ornamental Grasses, very interesting, and highly deserving of notice as affording, in conjunction with Everlasting Flowers, the means of having a very pretty bouquet at all seasons. The Grasses referred to were certainly very ornamental, but I should like to know a little more about them, and whether they are easily grown and dried in the condition of those exhibited, as their whiteness seemed to indicate a bleaching process not, perhaps, easily practised by every amateur who may grow a patch or two in his garden.

Another feature in the Show, and one which I have for many years advocated as deserving as much encouragement as fine-foliaged plants, was a collection of succulents; their diversities of form and all other characters being such that no one could look upon them without feeling surprised at their singular growth Several of them were also in flower, and some not devoid of beauty. A much less interesting part of the Show was a collection of Liliums, which fell far short of what was expected of them. Scarcely less satisfactory was the competition in Palms—a class of plants that might assist materially in giving effect to a show, especially the tall-growing ones, in which the Show, as a whole, was deficient.

There were one or two collections of cut blooms of Pyrethrums, resembling German Asters in size and colour—a class of plants I have not yet found so satisfactory as could be wished, and unless hardy, or nearly so, they will scarcely answer the purpose of the ordinary flower gardener—I do not mean florist. I fear the aim at very large flowers will result in so many of them hanging their heads down, that a smaller bloom would be much more useful. As they were staged they looked beautiful enough, and possibly may not all possess the defect I allude to. Pansies were also shown, but as the season hitherto has been so favourable to this plant, good flowers with a tolerable diversity of colour are met with in most gardens where they are grown; whereas in a dry hot season it is no easy matter to keep them alive where water is scarce.

One more remark I must make bearing on the public taste, and that is not at all complimentary to the admirers of a class of plants that have for many years been considered the aristocracy of the vegetable world, and these plants are Orchids. The collections, good as they were, received very little attention; occasionally an ardent admirer might be seen book and pencil in hand noting their peculiarities, and it was no disparagement to the members of this once-exalted family to find that most of their admirers were of the class to whom the use of kid gloves is a bore; in fact, beyond the attention paid them by gardeners and professional growers, the once-aristocratic Orchids had few admirers; while opposite to them, on the other side of the thoroughfare, I saw a group of herbaceous Calceolarias of no extraordinary merit beyond being healthy and in small pots, that everyone seemed to stoop over and admire, showing unmistakeably that colour, after all, is more attractive than form. I cannot say that it was pleasing to see this; for although the Orchids, from their costliness and difficulty of growth, may not deserve so high a position in public esteem as their most enthusiastic admirers claim for them, they are still entitled to as much attention as a varied collection of one species of flower. Public taste, however, is very capricious, as was evinced in the almost total neglect of some baskets of Tricolor Geraniums. These, although well grown and attractive in every respect, were all but ignored by the mass of observers.—J. Robson.

MR. GEORGE LIGHTBODY, OF FALKIRK.

There has passed away, after years of protracted suffering, one of the foremost of the old race of florists, a race whose successors it seems more and more difficult to find—who find no favour with the modern school, that sniff at them as narrow-minded, bigoted, &c., but who could devote their time with a patience that nothing could baffle to the perfecting of the especial objects of their care. Such a one was George Lightbody, of Falkirk, of whose death I have just received an intimation. We have corresponded for thirty years, but we never met, and yet I feel as if I knew him, and his loss comes to me as that of an old and valued friend. In early life Mr. Lightbody served in Her Majesty's navy, but retired to his native town, Falkirk, where he made himself a name, not only by the skill with which he cultivated florists' flowers, but also by his success in raising new varieties. In his palmy days he cultivated the Pink, Carnation, Tulip, Pansy, Auricula, and Ranunculus. He suffered for many years from a most distressing complaint, and this led him to restrict his cultures to the Ranunculus, Tulip, and Auricula. The year before last he parted, however, with his magnificent stock of Ranunculus to my brother and myself; and it is with a melancholy pleasure I now look out from where I am writing on the splendid bed, nearly all of his own raising, that are now in full bloom in my garden. Last year he parted with his collection of Tulips to a gentleman near Manchester, still clinging to what I believe was his especial favourite, the Auricula. With this flower his name will be associated as long as Auriculas are grown, not only from his own seedlings but also from that raised by Mr. Headley, of Stapleford, and named after him. His Lord Clyde, Richard Headley, Meteor Flag, Sir Charles Napier, and Star of Bethlehem bear witness to his skill and perseverance. No one knew the plant better, no one cultivated it with greater success, and no one was fairer or more upright in all his dealings. Like so many that I have known as florists, a simple and unaffected piety was a strong trait in his character; and while to many who, like myself, have never seen him, he has afforded much enjoyment through his productions, there are many who will miss him as a kind friend and neighbour. His latter years have been full of suffering, but his spirit still remained unbroken. He had even contemplated a visit to Mr. Headley this year. But all is over now, and we must number him amongst the many whom horticulturists mourn for as taken from them during the last year or two.—D., *Deal*.

"Died, June 9th, 1872, at Falkirk, after very severe and lengthened sufferings, George Lightbody, aged 77 years." The tidings that George Lightbody has passed away will be received by many florists, especially the older ones among us, with feelings of sincerest sorrow. Those, however, who either personally knew Mr. Lightbody or were acquainted with him through his kindly and instructive letters, can be now but little surprised to hear that he is gone. His life, assailed as it had long been by a disease which caused him seasons of the acutest suffering, had already lasted far beyond his own expectations. Truly he had a very vocation of suffering, but there was most patient endurance of it. Often, in the midst of some simple and touching allusion to his illness, he would write a quiet word of his thankfulness for the intervals of ease during which he could write at all—thankfulness, as we may say, for the lesser mercies of these short recoveries. Little by little and one by one he had laid aside most of his favourite flowers. The Tulips were the last to go. His Auriculas remain behind. He told me he should keep this gentle favourite—perhaps his chief—as long as he should live; and it speaks much, to my thinking, for this pearl of flowers that it could have the last hold of them all upon an old man's love, and be within the shortened compass of an old man's care. If anyone imagine there is "nothing much" in "the unmanageable Auricula," let him think of an attachment like to this.

I have not the honour to belong to the now veteran generation of florists who were young men with George Lightbody, so am not the fittest to speak of his life and times, but we all knew him for a hearty true old florist. His judgment on the flowers he was familiar with, his counsels on their cultivation, his dealings with us in them all were trustworthy throughout. Perhaps the Auricula and Ranunculus, especially the former, are the florists' flowers with which the name of George Lightbody remains most intimately connected. Although he told me he had forty years' work with the Auricula, and modestly called his success in raising new varieties but small, still we shall have some of his flowers for long to come. He hoped some one would lead the Auricula on, and his words were not lost on me for one. No one, I believe, would have rejoiced more than George Lightbody to see improvements beyond his own. I was to be careful to show him any, and he took great pains to aid other younger growers beside myself.

I repeat, I cannot attempt to do adequate justice to the memory of George Lightbody, but having been entrusted with a mission to simply announce his death, I cannot here refrain from the few words I have written over a very kind friend to me, and a very old friend of my father's before me.—F. D. Horner, *Kirkby Malzeard, Ripon*.

LAMPORT HALL.

Lamport Hall, Northampton, is the seat of Sir Charles Edmund Isham, Bart., and is near the railway station of the same name, about six miles to the north of the county town, on the line between Elsworth and Market Harborough. In Domesday Book it is named Langeport, being the Anglo-Saxon

for Longtown, and at that time the tenants of its lands were one Fulcher and St. Edmunds Abbey. In the reign of Henry II. it passed into the possession of the Trussell family, and remained with them until the reign of Henry VII., and then by marriage went to the Veres, Earls of Oxford, from whom the manor and advowson at the commencement of the reign of Elizabeth were purchased by the Rev. Robert Isham and his brother John, and the latter eventually became its sole possessor. It has continued the property and residence of his descendants ever since, and a baronetcy was conferred on one in the reign of Charles I.

The Ishams were Northamptonshire gentry in the earliest period of our authentic history. They derived their patronymic from a town in that county, and Roger de Isham in the time of the Normans is recorded among the first benefactors of St. Andrews Priory, in Northampton. We mentioned on a former occasion George London, then gardener to Dr. Compton, Bishop of London, accompanying that prelate when he commanded the guard which protected Princess Anne in the time of James II. That command was offered to Sir Justinian Isham, who modestly declined it, but consented to be cornet of the guard, and he carried its standard on which was the motto *Nolumus leges Angliæ mutari*.

The mansion is situated on one of those bold undulations with which that part of Northamptonshire abounds, and is on the margin of a park full of picturesque landscape and rich in patriarchal timber. Some of the Oaks and Walnuts are of gigantic size, and their age may be reckoned not by years but by centuries. On the side of the park skirting the Northampton Road, Sir Charles has indulged his love of trees by planting it most profusely with scarlet and double pink Thorns, and other flowering trees and shrubs, to the great adornment of his estate and the delectation of the wayfarer, who cannot but be charmed with the beauties that thus cheer him on his weary way. No part of the original residence of the Ishams now remains. The present house is a fine specimen of the Palladian style, introduced by Inigo Jones, and is built with stone dug in the neighbourhood, which in appearance is so fresh, and in

The Flower Garden at Lamport Hall.

condition so perfect, that one requires to be assured that the mansion was erected in the reign of Charles II. from designs furnished by John Webb, the son-in-law of Inigo Jones. A considerable addition was made about the beginning of the last century in harmony with Webb's design.

It is not our intention to enter into a full description of Lamport. In vol. xxiii. of our old series our correspondent, Mr. Fish, furnished abundant particulars descriptive of the, in some instances, unique way in which gardening is practised there; and the notes we now supply are more in the way of sequel than of minute detail.

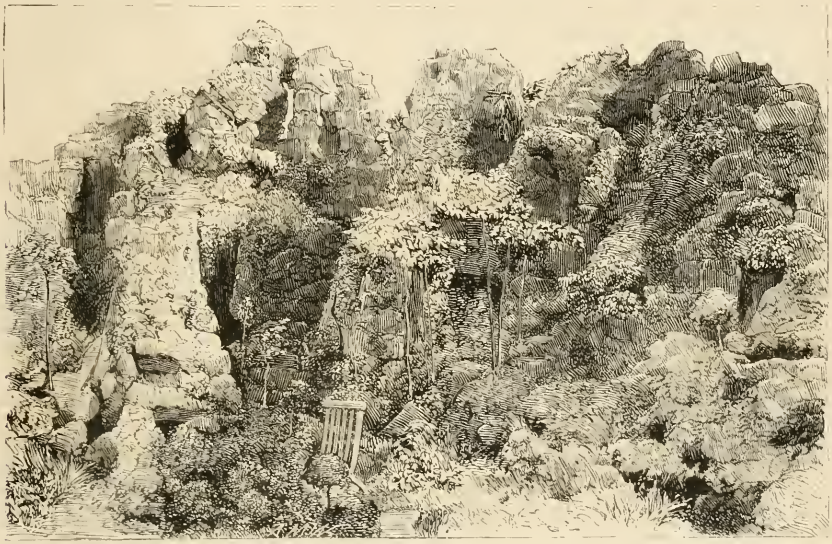
Our first illustration (*fig* 1.) is a representation of the flower garden at the back of the house leading to the lawn, the rockery, the conservatory, and the kitchen gardens. At the period of our visit the season was not sufficiently advanced for the flower-beds being clad in their gay adornment, but the photograph from which our engraving is taken conveys some idea of what effect is produced later in the summer.

Leading from the flower garden by a narrow entrance is the rockwork, a small piece of which is shown in the right-hand corner of the engraving. This rockwork is the great feature of the gardening at Lamport, and is a striking evidence of Sir Charles Isham's fine taste and wonderful patience. The whole is his own handiwork, and has occupied a period of two and twenty years to bring it to its present high perfection. As it would be impossible from mere description to give any adequate idea of this remarkable production, we have obtained an excellent representation of it taken from a photograph (see *fig.* 2); and our readers will agree with us that it far exceeds any idea they could have formed of it by the mere term rockwork, taken, as that term is usually employed, to denote a heap of stones thrown together with no definite object in view but to make their interspaces receptacles for alpine and other plants. We cannot do better than repeat what Mr. Fish wrote on this subject:—

I had frequently heard, through friends, of the riches of this rockery in plants, &c., and my imagination had revelled in a scene of romantic wildness, where the narrow overhanging defile, or chasmy dingle, had afforded an opportunity for the artist's skill in evoking ideas of the times when the old giants piled hill upon mountain, or just pitched from their large fists huge masses of stone from some far-off elevation, to enable us to note and compare the wondrous prowess of the past with the comparative weakness of the present. Such are some of the positions for a good artificial rockery. Judge, then, my surprise on obtaining the first view of the rockery from the conservatory, and in such nearness to an elegant mansion! Of all positions this, at first sight, seemed to be the strangest.

Some would at once determine, without seeing it, that it would be as much out of place in its position as a rough basket formed of tree roots immediately in front of a Grecian temple. Such arrangements as the latter are to be met with every day; and if the owners like them, why should we grumble because their taste may be different from our own? In front of a fine massive building, and there forming a centre to a pretty flower garden, was lately a huge hillock of roots of trees, stones, shells, &c., with plants of all kinds growing among them. In another place, and also in front of an elegant mansion, rough raised beds of roots were considered specimens of style as well as cultural skill. In a retired portion of the same grounds, roots, &c., were introduced with good effect. Notwithstanding its position, however, no such violent contrast is exhibited at Lamport. Except from the conservatory and a bedroom window or two, from no part of the house or grounds do you see much of the rockery until you get inside it. The greatest height in points, and sweeping and swelling curves, is on the top of a straight wall on the lawn side, that wall running in a line with the end of the conservatory. That wall was screened with evergreens; but there being a want of neatness about them they were removed, and white-variegated Ivy plants are now growing against it, and will soon cover it. Studs and wire are also placed on the wall, so as to train a few Roses, Clematis, &c., thinly, to give a light, airy appearance to the Ivy. On the end next the flower garden, a wall some 5 feet in height is also placed, covered with Cotoneaster microphylla, and inside and above that wall there are specimens of Yews and Arbor Vitæ, thick enough to conceal the interior view. A space is left between this wall and the mansion for an entrance, and a pathway up to the conservatory. With the exception of the culminating points, which will soon be draped with variegated Ivy, nothing of this rockery is seen from the grounds.

Once inside you forget all about the position, in looking at its deep recesses, bold protusions, mounds as if fallen from ruins, depressions as of the remains of partly filled moats, and all grouped and studded with next-to-endless varieties of rock and alpine plants. Nay, ere long, you must instinctively



The Rockery at Lamport Hall.

begin to see some reasons why it should be where it is. The conservatory forms, as it were, a second wing to the mansion; but it is placed at the end appropriated chiefly to the domestic offices. It is not likely, therefore, that there would be any access to it from the principal rooms, except by passing along the open garden front. The flower garden would thus be a rival to it; and it may have been desirable that the beauties of the conservatory should only be seen when reached. Again, the dairy, with a wide-based, high-peaked, domed roof, supported on pillars, and extending a considerable distance from the walls, has that roof thickly thatched with reeds, for securing coolness in summer. Other modes might have been adopted, as the thatch hardly harmonises with the other roofs; but being there, and about the centre of the rockery, you feel there is a friendly neighbourliness between the two. The third and most powerful reason could only be seen if the visitor had the good fortune to meet with the kind and courteous baronet. It is the delight of some men to look through a telescope to learn more of the great and magnificent. It pleases others, by means of the microscope, to note the mechanism and the fitness for a destined purpose in the very minute. Sir Charles is evidently a great lover of the beautiful in flowers, as on the evening of our visit he was carefully collecting some, to give the finishing touch to pretty vases in the dining and other rooms. Admiration, however, seemed to give place to enthusiasm, chiefly in the case of plants minute in size, and distinct and beautiful, and sometimes grotesque in form. Many of these are never at home unless they have a stone to cling to. Were the rockery far off, the little things might not be seen for days or weeks. Here they might be visited and noticed any time. The whole affair is not only the design of the baronet, but almost every stone, large as many of them are, was put in its place by his own hands. Many little beauties, whose names I had forgotten, many that I never knew, were, as respects their scientific and popular names, localities, properties, and whence obtained, as familiar to the owner "as household words."

Mr. Hector Rose.—We noticed the death of this excellent man and gardener last week, and we have since received the following notes:—"The death of Mr. Rose took place at his residence in the Royal Gardens, Frogmore, on the 5th inst. after a severe illness of ten days. He caught a cold, which terminated in inflammation of the lungs. His age was but forty-six years. He leaves a widow and a numerous young family to mourn his loss. He proved himself a thorough practical gardener, and his energy, perseverance, and punctu-

ality enabled him to overcome many difficulties. Previous to going to the Royal Gardens he was eleven years gardener at Floors Castle, and his excellence was highly appreciated by the Duke and Duchess of Roxburghe. About four years back he was chosen to fill the important situation of head gardener to the Queen at Windsor, which post he filled in a most exemplary manner, being kind, courteous, and just to all. The gardening profession has lost a good friend, more especially the young gardeners, for he strove hard to raise them and the profession to a proper standard, giving every facility for study, attending to their comforts in the garden rooms or bothies, better pay, and, above all, making a proper distinction between the young gardener and the garden labourer. Many head gardeners have the same opportunity, and I should be glad to see them 'do likewise.'"

WOODSTOCK PARK.—No. 3.

The Residence of the Right Hon. W. F. Tighe.

Before leaving the rock garden two plants deserve note—viz., Pinus Hartwegii and Fortune's Dwarf Palm; the former is a tree of grand effect, and the latter is growing-up as fresh as the native Ferns around it. This Palm should be largely planted in Ireland.

On again entering the pleasure grounds our walk skirts the wooded deer paddock, and the ground rises very considerably all the way to "Knox's Bower." A spur of Mount Alto is the background, and from this point blends finely into the park. By this walk we meet the Rhododendrons in broad masses, and as single specimens, especially the large scarlet ones near the fountain. Here, too, is a great mass of the Mediterranean Heath 6 feet in height; also many fine shrubs that time will not permit to note. On the left of this walk are a fine tree of Sequoia sempervirens, a good specimen of the majestic variety of Cupressus torulosa, and some grand examples of Pinus insignis. Here we are introduced, through a belt of Rhododendrons, to a line of young Araucarias planted at equal distances; they have been planted about five years, and we have never seen such vigorous growth in this tree. This curved line of trees promises to add a grand feature to the place in a short time; besides the shaping and draining of the ground for these trees, at least forty cartloads of stones and fresh earth were put as a base for each tree, and well the trees repay the trouble. On coming on to the walk again there is a splendid specimen of Thuja gigantea, over 25 feet high; this tree was, in June, 1863, put in as a small plant. At this point, the south-east outside of the kitchen-garden wall is a pretty sight with the exuberant covering of choice hardy climbing plants. A few are noticeable as being unusually large—Ficus repens covers a large space, Passiflora cærulea is very large; Edwardsia grandiflora, large; and Mahonia fascicularis, large and very handsome. The Solanum jasminoides is also fine.

Farther up, in a corner sheltered by large trees, is the circle bulb garden, with a fine Laurustinus hedge round it. This garden is interesting, but it wants renewing. Around this there is a great variety of interesting plants; a very fine Thujopsis borealis and a Funereal Cypress are striking objects. A Ceanothus divaricatus, 12 to 14 feet high, with its dark shining leaves, and so full of flower, is a rare sight, mixed with Rhododendrons.

Now we are in front of "Knox's Bower," standing on the edge of a gentle, natural-looking slope. This bower is of elegant design and exquisite workmanship, and it commands a beautiful view of Brandon and the country to the east of it. Here we find at an outside suitable point, nine fine young Araucarias planted on a curved line. These have been planted about three years; the sites were treated like those of the others already spoken of, and the trees are equally promising.

From this turning point the walk winds round the upper part of the grounds, and the higher part of the park is screened from it by forest trees and a great bank of Rhododendrons. At the first turn we come upon an egg-shaped Rose garden, a pretty style, with an arched trellis round it. On the edge of a sloping glade by the side of this garden stands the great Araucaria, a most perfect tree, about 45 feet high, and the massive wavy branches sweeping the grass. The girth of the stem near the ground is now 7 feet 10 inches. In the last four years it has increased 1 foot 2 inches in girth, or at the rate of 3½ inches a year. This tree is now showing cones for the first time. It is generally believed that the soil at Woodstock is favourable to the growth of the Araucaria; the reverse is the case. All over the declivity on the north-west side of Woodstock demesne there is underlying the surface a sulphury iron pan, and whenever the Araucaria roots touch this pan rapid disease commences. It so happened that this great tree, now the admiration of every visitor, was planted on artificial ground made by the levelling for the Rose garden. A match tree was planted at the same time on the opposite side where the ground is natural: that tree died more than twenty years ago. The tree we are admiring began to suffer from the wet seasons ten years ago—the branches on the upper side showed unmistakeable signs of decay. A drain was then made at some 10 yards from the tree, and 10 feet deep, and filled to the top with stones, which cut off the water from the high ground. The ground was otherwise improved on that side of the tree, and the growth has been uniform since.

Although the Araucaria imbricata is perfectly hardy in this climate, we are convinced, from careful study of this tree, that it will only be seen of a healthy tree size where the ground formation is naturally suitable, or is made to suit its requirements. Its physiological construction is distinct from any other tree adapted to our climate, and this is easily accounted for by the climate of the natural habitat of the Chili Pine, which is for a considerable period of the year within the track of the south-east trade winds. When our summer sun comes north the belts of perpetual winds and calms are affected, and the north-west wind plays counter to south-east, which causes the deposit of moisture on the region of the Chili Pine; but this moisture never affects the roots of the tree. Can anyone inform us where a healthy Araucaria 10 feet high is to be seen on a wet subsoil?

Near this there is quite a new class of trees and shrubs from what we have seen in the lower part of the grounds. A fair sized scarlet Oak attracts the eye by its beautiful golden leaves; a tree of the Butter-Nut (Caryocar nuciferum), near it, is very striking in the expanding foliage; a great shrub-like mass of the brilliant-coloured Erica australis has a charming effect. Here we have a large Mahaleb tree, a group of curious Crataegus, and another of Hollies, among which is noticeable a good plant of the latifolia variety. A belt of Rhododendrons screens this from another piece of lawn, where we are in front of another ornamental bower, from which a straight walk runs across the flower-garden terraces, and seen on through the ornamental gates of the kitchen garden, and the eye rests on a part of the massive ornamental wall far away at the new terrace garden—a grand garden scene without a single interrupting element to mar it. Close beside us are very fine specimens of the following trees:—Cedar of Goa, with a very large head; Cunninghamia sinensis; Pinus Lambertiana (it surely cannot be true there is any intention of cutting down this fine specimen?), and Abies Morinda, a grand tree with branchlets hanging down 6 feet. Picea cephalonica is of great size and a perfect model of this fine tree. Abies Menziesii is growing rapidly, and of a fine glaucous colour. This large tree was transplanted ten years ago. The last we mention here is Pinus apulcensis. This is a very beautiful Pine, and quite a picture here.

We are now looking at the south-west outside wall of the kitchen garden, also beautifully clothed with climbing plants, of which there are fine masses of the Smilax, Tasmania aromatica, Olea excelsa, Anagyris indica, Correa rufa, Viburnums, Garrya latifolia, and Magnolias, with many wall plants rarely seen out of doors.

The flower garden is not yet planted, but we admire its style and surroundings. There is no change here since Mr. Fish described it so admirably in this Journal some years ago. This garden is the design of Lady Louisa Tighe, it consists of two terraces and a set of T-double beds along the foot of the ornamental wall, and we cannot imagine anything more complete than the design and effect of this garden when well planted.

The conservatory standing at the end of the terrace garden is one of Turner's best style of circular houses, more need not be said. The beautiful Phœnix Palm that used to furnish the centre of this house overgrew its place, and is now planted in a sheltered spot near the old greenhouse, and throwing-up new leaves. The old fronds are about 15 feet and in a healthy condition. It will be a rare sight if the Date Palm take to grow at Woodstock.

Here, again, we find a new variety of garden embellishment—borders edged with cheerful quartz stones, varieties of evergreen hedges, quaint-looking marks of an old garden, a wide border of rare shrubs and trees nursing, ranges of forcing houses in good order, and the products of first-class culture.

We meet with Roses of the choicest Tea, and of the most glowing Perpetual varieties, the sweet Carnation in great breadths, and hedges of Veronicas 6 feet or more high, and the "Hill" Bamboo some 17 feet high.

The range of fruit houses inside the garden is half a century old, but in good order, and it would be difficult to find a more promising crop of fruit than is now to be seen in them. In the new part, at the bottom of the range, some 80 feet long, the Vines are grown on the extension system, and show great vigour. The fruit houses, with the three other ranges of houses, consisting of a pinery, plant house, vinery, with wings of plant and forcing houses, are all heated by one of Weeks's duplex boilers. One of Weeks's large tubular boilers, which was in use here before, gave way after eleven years' service. Mr. Matheson is well pleased with this new boiler, but a period of two years is not a fair test of such an expensive boiler, and there is abundant proof that it is not safe to rely on one boiler where such an amount of work has to be done as there is at Woodstock.

The old greenhouse claims a special word for the beautiful effect of the climbing plants which it contains, consisting of a Wistaria running the whole length under the ridge, the Abutilon striatum, and Bignonia radicans. Cautua dependens, trained in festoons on cross rods, is really beautiful.

Mr. Matheson is too well known as a practical gardener to require it to be told how he does things here, it is enough to say that his work does him credit.

The farming at Woodstock is equally as successfully done as the gardening, and it was with regret that we had to leave without seeing more of the enterprising work carried on with such order and success by Mr. Davidson.

The gardens and grounds of this magnificent place are freely open to the public at all times.

ENTOMOLOGICAL SOCIETY'S MEETINGS.

The May meeting was held on the 2nd ult. at Burlington House, H. T. Stainton, Esq., Vice-President, being in the chair. Mr. Edward Saunders exhibited an extensive series of Australian Buprestidæ, with the view of showing the great sexual differences in these insects, which had not previously been sufficiently recognised. Mr. F. Smith exhibited a large collection of Hymenopterous insects, chiefly of the stinging tribes, collected at Hiogo, in Japan, by Mr. G. Lewis. Like many other tribes of Japanese insects, these exhibited were extremely European in their aspect, and among the Ants some of the species appeared identical with European species; the genera were all represented in Europe except one genus of Formicidæ. There were also six new species of Hylotoma, and a new Sirex allied to S. gigas, but with the base of the abdomen constricted. Mr. Verrall exhibited a specimen of Syrphus lasiophthalmus with two of the legs distorted, as though they had sustained an injury on emerging from the pupa shell.

The Chairman exhibited an Aspen leaf sent by Lord Walsingham from Fort Klamash, Oregon, pierced with a multitude of small oval holes made by small Lepidopterous mining caterpillars, each of which had detached an oval case formed of the cuticles of the leaf, and which had subsequently produced a minute Moth of the genus Ampidisca, which he exhibited. Mr. E. Saunders read "Descriptions of twenty new species of Buprestidæ;" and Mr. W. H. Bates a memoir "On the Longicorn Coleoptera of Chontales, Nicaragua," containing 242 species collected by Mr. Belt in the neighbourhood of the gold mines of that district. Of these, 133 were peculiar to Chontales, thirty-eight of them had been also taken in Mexico, twenty-four in New Grenada and Venezuela, twenty-two in the Amazon region, ten in South Brazil, and five appeared generally distributed in tropical America. Of the 129 genera contained in the collection only seven were represented in the Old World, but ninety-five of them were universally spread over tropical America. Hence Mr. Bates deduced the two following facts—1, The homogeneity of the type of the insect fauna of the forest regions of tropical America, extending probably over 45 degrees of latitude; 2, The existence of a distinct northern element whose metropolis is Central America.

The June meeting was held on the 4th inst., with the President, Professor Westwood, in the chair. A very extensive and valuable series of works presented to the Society since the last meeting were laid on the table, including M. Millière's work on the transformations of Lepidopterous insects; the Transactions of the Entomological Societies of France, Berlin, Italy, and Ontario, the Zoological and Royal Societies of London, &c. Viscount Mereton was proposed as a member.

Mr. Stainton exhibited, on behalf of Mr. Traherne Moggeridge, a sprig of the Cork Oak from Mentone, having an excrescence at the base of the leaves like a Black Currant, but which proved to be the female of a globose species of Coccus. He also exhibited specimens of a small Moth, Elachista Rivillii, the history of which had been described by M. Godet de Riville more than 120 years ago, but the existence of which had subsequently been ignored. Its economy is very interesting, the larvæ feeding on the leaves of Vines in Malta. Mr. Stainton had now succeeded in rearing it from infested Vine leaves collected at Massa de Carrara by Lady Walsingham.

Professor Westwood exhibited a mass of very delicate white cottony cocoons as large as a moderate-sized Orange, which had been formed by numbers of the minute larvæ of an Ichneumon which had fed within the body of a large caterpillar in Ceylon, collected by Mr. Thwaites. The Professor had extracted 717 specimens of winged insects from the mass, and there still remained between 200 and 300 entangled in it, so that the unfortunate caterpillar must have supported not fewer than a thousand parasites feeding on its internal organs. He also exhibited sprigs of an Apple tree, the buds of which had been destroyed by a caterpillar, probably the Tortrix ocellana.

Mr. Higgins exhibited a fine series of Cetomidæ from Java collected by Herr Mehnicke, which had recently been described in the Zoological Archives of Berlin. Mr. J. Jenner Weir mentioned the interesting fact, that having planted a South European species of Rhamnus in his garden, it was immediately found out by the Brimstone Butterfly, Gonepteryx Rhamni, which he had never before seen there, and which deposited on the plant its eggs, from which he had reared the perfect insect. Professor Newton communicated the fact that the nest of Merops persicus had been found lined at the bottom with the wings of Dragon Flies on the bodies of which the bird had fed. Mr. Müller read a notice of the plague of Ants in May Island on the coast of Scotland. Mr. McLachlan read a notice respecting large numbers of the splendid Beetle, Calosoma sycophanta, which had been observed upon the dead body of a man found hanging in a wood in France. As this insect is known to feed upon caterpillars, it was suggested that it was found in that situation in search of the larvæ of blowflies which had already been deposited in the body.

Professor Westwood mentioned a fact recently observed by M. Guénée, showing the repugnance of Nature to perpetuate monstrous varieties. He had reared the male and female of a rare Moth, but the male differed from the ordinary character of that sex by having its wings coloured as in the female. For four days the two moths remained without pairing, but on that day several of the ordinarily coloured males were produced, with one of which pairing took place as soon as the male was free from the chrysalis.

The Gardeners' Royal Benevolent Institution — This really benevolent Institution, which has now been in existence for upwards of thirty years, and which during its early period was very indifferently supported, has now, we are glad to say, attained a position at least of the highest respectability and usefulness, if not of absolute wealth. It is the latter which it is now most in need of; and as the anniversary of the Institution is to be held on the 2nd of July next, we trust that those who are charitably disposed, and have the means, will not forget the afflicted brethren who have contributed so much to their pleasure. Dr. Hogg will be very pleased to take charge of any contributions for this desirable object.

SOME PREDATORY INSECTS OF OUR GARDENS.—No. 31.

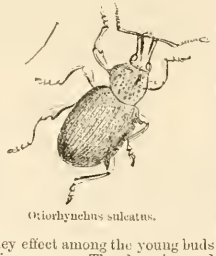
Undoubtedly it is the case, that not only those comparatively ignorant of science, but those with some proficiency in botanical and entomological knowledge, are liable to mistake the work of insects for incipient decay arising from other causes, and *vice versâ*. I have had recently an instance of this with some Chrysanthemums which were evidently perishing, and, upon their being dug up, about the roots were a number of that common centipede, Julus terrestris, and also sundry parties of earwigs. Now to anyone not fully acquainted with the circumstances it would seem as if here lay the secret of the sickly condition of the plants, but the truth was that the conditions necessary to insure the health of these particular Chrysanthemums had not been complied with, and the plants were dying through neglect. The centipedes infesting the roots were not the cause but the consequence of the change, and it is very doubtful whether in their predatory proceedings centipedes ever resort to roots which have not begun to decompose, unless it be in pursuit of insects or other living creatures. This does not, of course, exonerate centipedes and their relatives from the charge of attacking fruits, which they will sometimes devour. Thus, I have more than once found ripe Strawberries swarming with a small millipede in an im-

mature condition, I fancy the species known scientifically as Arthronomalus longicornis, and which, though popularly called a millipede, has not anything approaching that number of legs even when mature.

But as to the earwigs, though under the circumstances inclined to enter a verdict of "not guilty" against them where the dying of the plants could be otherwise accounted for, it is yet true, as I believe, that during the winter months they carry on operations underground, in some cases to the destruction of roots and to the injury of bulbs. Only a part of the species, however, spend the winter thus, many of these insects living in a half-torpid state in crannies and corners, frequently under bark, &c.

The Raspberry of different varieties, as cultivated in our gardens, is not the object of the attacks of many insects. In fact, there are several caterpillars found not uncommonly upon the wild Raspberry of our hedges and copses which do not show any tendency to shift their quarters and experiment upon the shrub as it is modified by culture. The almost universally troublesome aphis does not particularly infest the Raspberry, so far as I have observed, nor have I noted any record of injury done by insects of this genus which is at all of importance, common as they are upon species near akin. During the present spring I have been surprised at the caution with which the caterpillars of the common Gooseberry Moth (Abraxas grossulariata) avoided touching the leaves of the Raspberry, where they were intermingled with those of a Gooseberry bush on which they were feeding. As the season advanced, and the cold weather checked the development of the leaves, these caterpillars grew faster than their food, and were compelled to desert the Gooseberry and Currant bushes (on which they were left undisturbed, for the sake of experiment), and foraged in other parts of the garden. The Peach, Plum, and even the Rose, supplied these stragglers with congenial food, but they continued to avoid the leaves of the Raspberry. From the moths being seen at rest occasionally upon this shrub, it has been supposed by some persons that Sesia tipuliformis attacks the Raspberry shoots as well as those of the Currant. The species certainly does not touch the former in this country, nor, indeed, would the ordinary growth of the Raspberry suit the habits of the caterpillar.

Passing by the supposititious enemies of the Raspberry, we come now to consider its real foes, and prominent among them is the caterpillar of the small and very elegant moth, called by the entomologists of our time Lampronia rubiella. Amongst other names the species bore we find variella, though the insect is not remarkably liable to vary, and corticella, also inappropriate, as it is not on bark or under it that the caterpillar mostly occurs. No recognised English name has been applied to this little moth, though, were one necessary, the Gold-spotted Raspberry Moth would not be unsuitable, except that it is full long. The wings of the perfect insect are brown, rather lustrous on the fore wings, the hind wings are of a duller tint. The dark shades are relieved by the golden yellow spots, and under a moderate magnifying power the moth has a handsome appearance. The females deposit their eggs in June and July, and the young caterpillars, which are little noticed in this stage, live through the winter, and make themselves only too prominent by the destruction they effect among the young buds in those places where this species occurs. The drooping and withering of the shoots and blossoms in April and May, reveal to the gardener that something is amiss, and the intruder, on examination, is dislodged in the form of a reddish caterpillar, rather sluggish, the head and legs black, also the anal extremity of the body. The "claspers" or pro-legs are flesh-coloured. As it often happens with insect ravages, the mischief has generally proceeded to some length ere the caterpillars are sought for; and should they be left undisturbed after feasting *ad libitum* on the buds, they enclose some of the withered leaves with silken threads, and in these cocoons turn to pupæ.



Otiorhynchus sulcatus.

Against this insect fumigation, syringing, and remedies of a similar character prove of little avail, and the tedious process of examining the Raspberry canes and squeezing the buds in early spring is the most effectual preventive of extensive damage. One author, writing on this species, observes that "should they deposit their eggs on the old bearing wood, these will of necessity be cleared away at the winter pruning, as all that wood is at that time cut away, and we can scarcely believe them endowed with sufficient sagacity to choose the young wood which is left." With all deference to this writer, such an instance of instinct would not be so very remarkable, and cases not dissimilar are familiar to most students of entomology. Take, for example, that of those moths which will deposit their eggs on seed-pods, and place them in a position which enables the newly-hatched larva with the least difficulty to reach the enclosed seeds which are to afford it nutriment. Still, I do not assert that the eggs of L. rubiella are placed on the new wood, not having had an opportunity as yet of looking for them at the right time. This species does not seem at present to be notably common in the districts west and south of London with which I am acquainted.

Some insects there are which are a cause of injury and annoyance in both larva and imago states, and this is true of the Beetle known as Otiorhynchus sulcatus. A frequent enemy of the Raspberry, it also does not spare other plants and trees valuable to the horticulturist. It is throughout the winter that the larvæ or grubs of this species are busy at work, both in and out of doors. In fact, they appear to be more active in greenhouses and conservatories at that season, due, doubtless, to the influence of the higher temperature therein. In open ground it is likely they become partially torpid in frosty weather. Succulent plants are most favoured by them, and their attacks are made pretty indiscriminately, the exhaustion produced by the damage done to the roots being rendered patent by the sickly aspect of the plants. These larvæ, which are only a few lines in length, fleshy, and bristled, are endued with considerable strength, and move under the earth very dexterously, becoming pupæ about the end of May, and beetles in a month after. The insect is rarely injurious to the Raspberry until it comes abroad in the latter state, when it is about half an inch in length, black and glossy, the wing-cases furrowed and granulated. In June and July these beetles will sometimes be detected in the act of gnawing the shoots of the Raspberry; frequently we only discover that they have been on the plant by the results of their visit, as they are partial to night excursions. In reply to an inquiry regarding the best means of checking their ravages, they have done much harm to fruit trees in hothouses in 1871. Mr. Newman states that the only plan of any utility is to search for them with a candle and lantern. Some seasons, O. sulcatus has chosen the Vine as its especial object of attack, and in hothouses it has been out as early as March, eating both the shoots and the leaves. The grubs have also been discovered at the roots of the Vine, though not able to do much harm in that way, but still having a tendency to prevent its bearing.

Otiorhynchus tenebricosus.

Other species of Otiorhynchus are troublesome in gardens; thus on the Apricot and the Peach O. tenebricosus is seen in swarms during some seasons. It is commonly supposed to be most prolific upon trees which are trained upon, or situate near to old and partly decayed walls. Certain it is that such walls afford them a ready means of concealment, and to operate against them we must, after removing all we can from the branches and leaves, deprive the rest of their retreats by filling up all cracks with cement. Any loose pieces of bark should also be taken off. O. vastator visits the Apple, more particularly in orchards, and Loudon records an instance where many hundreds of young saplings were said to be destroyed in a single night by a visitation from the species in great force. The trustworthiness of this naturalist is not to be questioned, yet it is possible the report made to him was not quite correct, at least as to the suddenness of the disaster. Sprinkling the branches with a strong decoction of tobacco has been recommended, or the throwing of lime upon them by some of the various forms of apparatus devised for the purpose.

One more pest of the Raspberry should be named, the larva

of the fly known as Fenusa pumila, which is found in (not on) the leaves during July, living and thriving between the two surfaces, and producing at length good-sized blotches on the leaves. On investigation we detect, within, a small dull green caterpillar or grub, having, however, twenty feet, and thus proving itself to be non-lepidopterous, since in that order the number does not exceed sixteen. The caterpillar of F. pumila has six true feet and fourteen claspers, and when adult it quits the leaf and seeks the ground. In August the flies are on the wing, and in some seasons it is believed there is a second brood. This species is rather disfiguring than actually injurious; the only way of dealing with it is to pick off and burn the blotched leaves.—J. R. S. C.

Death of the Rev. W. Ellis.—At Rose Hill, Hoddesdon, on the 9th inst., died the Rev. William Ellis, aged 77, who, during a long and active career, did much both for missionary work and for horticulture. He carried in his youth gospel tidings over untrodden paths, in his latter years he brought undreamed-of plants from little-known lands. Of his missionary labours it is not for us to speak; his "Polynesian Researches," which he published shortly after his return from the islands of the South Pacific, are a charming record. Subsequently he went to Madagascar, of which island he wrote a history, and with which country his name is more particularly connected. From it he introduced the singular and still rare Madagascar Lace Plant, Onvirandra fenestralis, and besides we owe to him the introduction of Grammatophyllum Ellisii, Angræcum sesquipedale, A. Ellisii, and other Orchids, a class of plants of which he was a frequent and successful exhibitor.

Sales of Orchids, &c.—Mr. J. C. Stevens had another auction of Orchids on the 8th inst. Specimens of a new Cattleya realised £6; Masdevallia Lindeni, £8 8s.; Cattleya gigas, £5 15s.; Mesospinidium sanguineum, £6; and Odontoglossum sceptrum, £7 7s. On the 12th inst. he sold a collection of Orchids and rare Ferns. Saccolabium guttatum giganteum realised £14 10s.; Vanda suavis, £8 15s.; Cibotium princeps, £3 10s.; and Alsophila australis, £2 5s.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Lose no time in planting-out *Broccoli* and Winter Greens generally; *Brussels Sprouts* cannot be too highly recommended. Continue to ridge-out *Celery*. Stop *Peas* and *Beans*; another sowing of Peas may be tried, and stake *Scarlet Runners*. Earth-up *Potatoes;* as yet we are entirely free from the disease. A piece of ground should be trenched and richly manured to receive a batch of *Strawberry* plants of this season's forcing; they are to be preferred for the purpose. It is a good practice to make and destroy a bed each season. It is advisable to begin the selection and potting of Strawberry runners for next year's forcing; as soon as they are advanced sufficiently for the purpose—that is, when they show a disposition to root, peg them in small pots nearly filled with rich loamy soil, and plunged. Collect a good heap of compost for ultimate potting, for which purpose a mixture of loam, rotten cowdung, and decomposed night soil is recommended.

FRUIT GARDEN.

Black fly is sometimes very troublesome on the late Cherry trees at this season; it is, however, easily disposed of by dipping the ends of the shoots in tobacco water, and giving the trees a good washing with the engine next morning. This may occupy a little more time than the usual method of syringing, but it is a more certain remedy, and much less tobacco water is required. Lay-in the young shoots of Peach and Nectarine trees, stopping any that may seem to be taking a decided lead, and endeavour to secure an equal growth all over the tree; also persevere in stopping the breastwood on all trained trees, whether wall, espalier, or pyramidal, and proceed with nailing as expeditiously as circumstances will permit.

FLOWER GARDEN.

Now that the bedding plants are fairly cleared off and growing freely in their summer quarters, there will be more space and time to attend to the propagation of favourite hardy plants, and no time should be lost in putting in a good supply of cuttings of such plants as it may be thought desirable to increase; for the propagation of the bedding-out stock for next season will soon require attention. If not already done, sow Brompton and Queen Stocks for spring flowering, selecting for them a piece of light rich soil, and never letting the surface become dry until the plants are well above ground, for there is no time to be lost if these are to be strong for blooming next May, and at that season we have nothing more beautiful or half so fragrant as well-grown plants of the latter. Do not omit to put in on a slight hotbed a good stock of Pink pipings, and also see that there are plenty of young plants of Pansies for enlivening the borders next spring. They are deserving of extensive cultivation for the spring decoration of the flower garden. Young shoots, where they can be procured, will root freely under a hand-glass in a shady corner, and when struck, if planted-out in rich soil in a similar position, will grow rapidly during the autumn, and may be transplanted into the flower garden when the frost cuts off its present occupants. Cuttings of Roses grown under glass root in a gentle bottom heat very freely, and every cutting which can be procured should be put in at once, for it is hardly possible to be overstocked with these. Persevere with mowing, rolling, and keeping down weeds.

GREENHOUSE AND CONSERVATORY.

Contributions from the stove should still assist the ordinary stock, so as to maintain the gaiety of the conservatory. The removal of some of the larger specimens from the stove will afford much useful space for the young and delicate portion of the stock, which should now be shifted and otherwise encouraged. This recommendation applies to seedling stove or recently-introduced tender plants, which should have all appliances to induce a vigorous growth the first season, as our winters are very trying to such immature plants. When stove and greenhouse plants afford suitable cuttings, propagation may still be pursued, or, generally speaking, it can be practised with greater success in the early part than in the latter part of the year. It should be remembered that the propagation of most plants is facilitated by the employment of bottom heat and bell-glasses. It will be necessary frequently to look over greenhouse plants plunged out of doors, and check the havoc of worms and robbing by weeds; also attend to their security from high winds. At no season should the plants be crowded in this house, and this is especially to be avoided at the present, when mildew is unusually active, and most things in such a state as to be speedily injured by it. Endeavour to grow every plant well and to bring in nothing but fair specimens here; then there will be no temptation to huddle them together for the purpose of making one hide the defects of the other. In the case of softwooded stove plants, or such as are grown in a season, it is not of much consequence if they receive a little injury by being placed close together while in bloom, but all valuable specimens of hardwooded plants should stand quite clear, so that every part may receive plenty of light and air. Indeed, most conservatories are so constructed and managed as to be very unsuitable for many of our finest, summer-blooming greenhouse hardwooded plants, as Ericas, Leschenaultias, &c., and if these must be brought here, they should, while in flower, be placed near the glass in the coolest part of the house, where air can be freely admitted during the day; and a little left on at night when the weather is warm, will greatly assist in preventing drawing-up. Plants which are known to be impatient of a confined atmosphere should on no account be allowed to remain too long in a situation which is in the least unsuitable, for fine specimens are not grown without much time and care, and many of them do not soon, if ever, recover from an injury, which at the time, save to the practical eye, may be hardly perceptible. The Camellias and Azaleas for early blooming will have set their buds, and should be removed to a sheltered shady situation out of doors, for if kept in heat they will be apt to make a second growth, which must be avoided, as it prevents their flowering so freely as would otherwise be the case. Give every possible attention to plants for autumn and early-winter flowering, as Lilium lancifolium, Chrysanthemum, Salvia splendens, Globe Amaranths, Tree Carnations, Scarlet Geraniums, Cinerarias, Gesneras, Begonias, Euphorbias, &c. Let these have plenty of pot room, good rich compost, a moist atmosphere, and plenty of space for the perfect development of their foliage, regulating the temperature according to the nature of the plant, and they will make very rapid progress. Selago distans is an exceedingly useful winter-flowering plant, merely requiring a cold pit to grow it in, but we have nothing that surpasses the Epacris, the winter-blooming Ericas, and the varieties of Polygala—a remarkably useful and ornamental class of plants, which can be had in bloom nearly at all seasons in good condition; the

colour of their blossoms and their freeness in producing them will always obtain for these plants a place as useful ornamental subjects. The soil in which they delight is one consisting of equal portions of fibrous loam and heath soil, with an addition of charcoal, gritty sand, and rubbly stones. If good heath soil cannot be easily obtained, make use of half-decayed, open, rough, healthy leaves with the loam, pressing it all together pretty firmly when potting them; after this is done set them for a time in a shady situation in a cold pit, or some place where they do not become sunburnt, and regulate the sturdiness and shape of each plant by stopping or pinching-back the growing shoots in due season. Occasionally apply clear diluted manure water to such plants only as have an abundance of healthy roots and are in the middle of their growing period. Among comparatively modern plants Sericographis Ghiesbreghtiana is well suited for the decoration of the conservatory in winter, as also the blue Conolinium; and the singular Thyrsacanthus rutilans is excellent for a rather warm house, but is not found to answer for winter use in the conservatory. The atmosphere of plant houses can hardly be kept too moist at this season, but it is very easy to err in the opposite direction; therefore sprinkle every available surface frequently, and syringe growing stock lightly twice a-day. During bright weather avoid a too free use of the shading, and ventilate well in order to secure compact growth.

STOVE.

The fine weather will render the use of the syringe frequently necessary. Atmospheric humidity may be sustained by frequently damping the house. If the regular and continuous admission of air is given it will be found useful. Let a supply of turfy peat be kept at hand to make-up the baskets of Orchids and feed vigorous plants.—W. KEANE.

DOINGS OF THE LAST WEEK.

KITCHEN GARDEN.

Cauliflowers.—We lately boasted of these, but for two or three days there were none fit to cut, for the heads would not swell a bit, and though we like them to go to the dining-room rather small and compact, we could not get them large enough to suit our purpose. The fine weather of two or three days at the end of the week has given them a start, and most likely the servants will have plenty of them, as Cauliflowers, however desirable, will not keep crisp and close long. We mention this because, though we had some fine early heads, the cold damp weather interrupted the continuance of the supply.

We said something lately about some huge yet close *Broccoli*, and we have had several letters, the purport of which is simply this: "Do you approve of sending such large-swelled heads to your master's table?" We do not. We would sooner send three small compact heads than one huge one, though that huge one might be firm and bright-coloured; our chief reason for this is, that good as the large head may be, it is rarely that it equals in flavour a compact head of a third of its diameter. Still, mere bulk goes such a way with some people that we would advise young gardeners now and then to send in a huge head of Broccoli or Cauliflower to the dining-room. We have known of several cases where ladies and gentlemen, seeing large heads of Broccoli and Cauliflower in the market, thought their gardener was not using them well, because he sent them always such small heads to table. He, poor man, was all along studying what would be the best for them. A few days' longer time and a fresh dose of liquid manure would have changed the compact sweet little heads into huge ones; and though a firm Cauliflower, however large, is sweet, we never found a head 1 foot in diameter equal in flavour to one of 5 or 6 inches. As a general rule it will be found that the very best vegetables are confined to small dimensions, and on the whole the medium-sized are the best. Even a medium-sized kidney Potato is generally better flavoured than a huge monstrosity. Other things being equal, we do like a large rounded head or shoot of Asparagus. A first-rate judge told us years ago, that though huge green heads were the best to look at, they were not equal in flavour to medium-sized heads, and that though 1 inch was all he could use of the white blanched Asparagus in Paris, he could use 4 inches of ours, and draw the juice out of an inch or two more.

We do not like the idea of being set down as an authority, but as the matter comes frequently before us we do not hesitate to say that in the case of all servants it is well that every tub should stand on its own bottom, and well also to use a little prudence to see that that is the case. If there is not a regular daily list sent to the mansion, it is well that the lady and gentleman should occasionally see the vegetables and fruit that go in daily, and *that it should be known that they do see them.* This latter fact will do wonders, and every gardener should try that it should be acted on. It is thoroughly repellant to our nature to be suspicious. We have sometimes suffered a little from being too trustful, but after all we have found the grand truth of the words of Eliza Cook—

> "It is better to trust and be deceived
> Than never to trust at all."

It is well that what a gardener grows and prides himself in growing should go to his employers' table, and to secure this, if his situation is at all problematical, one or other of the two courses alluded to above are necessary, and in self-defence ought to be acted on. We have stated repeatedly that we have no faith in a narrow, contracted, concealed mode of acting, but every faith in an honest, straightforward, and true course. The gardener ought to look on his fellow servants in that light until he is forced to see differently. Independence and straightforwardness are the weapons a man should prefer using. Some day we may enter more prominently into the whole question; meanwhile we say to our *confrères*, Act in a straightforward manner; be courteous, but avoid manfully anything like trimming, falsehood, and mere subserviency.

Returning now to Broccoli and Cauliflowers. When we have acted as judge, sometimes that judgment has been questioned. It is unpleasant to be called on to give your reasons for this and that in a crowded hall or tent. We recollect being taken to task because we passed over some large Cauliflowers, but rather open, and gave the prize to heads crisp, close, but scarcely more than half the size, exhibited by a gentleman's gardener, and then in the cottagers' class we gave the prize to the largest well-formed heads. Some may still say we were wrong, but we acted on this principle, that for a gentleman's table quality should have precedence over quantity, whilst for a working man with a family the fill-mouth and the fill-dish principle ought to come in as a matter of the first importance. Thus in judging the productions of gentlemen's gardens we make quality the first consideration; in judging the produce of cottage gardens we hold in a great measure to size.

Besides securing successions and thinning Onions and Carrots, we have been hoeing to keep down weeds. One sunny day kills them when cut up small. It is a great waste of time to allow weeds to become so large that you must rake them off. Use the hoe in time, and so far as weeds are concerned the rake may be kept locked up.

Cucumbers.—We have several inquiries whether we still find that curbing the roots is conducive to the abundant production of fruit. In all confined places, as a narrow pit or common frame, there can be no question of the results as regards fertility. Our frames, where the plants have yielded freely, are 6 feet wide, and the width of earth in the centre is 2 feet, banked off with boards back and front, and we have proved over and over again that with such an arrangement we have smaller foliage but much more fruit than when we had a bed of earth 6 feet in width. We had only four lights of frames, and after gathering freely there was such a supply from our small narrow pit that we rather neglected these frames, and some green fly attacked them, and therefore, to avoid smoking, &c., we pulled the plants out, turned over the bed, added a little fresh dung beneath, made the trench as before, and turned out strong plants. If those in the pit show a little distress we can now fall back on the plants in the frames. Growing Cucumbers in pots first suggested to us the importance of curbing the roots, and we are glad to say that hundreds now adopt the plan with great advantage. The owner of a two-light frame told us the other day, that by merely having six pots 15 inches in diameter, and a plant in each, he cut three times the quantity of fruit he ever did before. In our small narrow pit, where the plants are in pots, we top-dress frequently, covering the pots and all, but still the roots are curbed, and we obtain a large quantity of fruit, and comparatively small healthy foliage. As we stated lately, such care is not necessary where there is plenty of room in a lofty Cucumber house.

FRUIT GARDEN.

We have received some letters of thanks as to watering trees in pots and borders. Simple though the matter is, much mischief is caused because people will not examine for themselves the state of the soil and roots. Read last week's notice as to this. A damp surface and dryness beneath are ruinous. There are two simple things which we find it next to impossible

to get young gardeners to attend to. First, to apply the tests as to the dryness of plants in pots. They will tell you when they watered them, but *how* is the question. Then there is the custom of rushing into a stokehole and piling on a fire irrespective of circumstances. Now, the first thing that should be done is to consult the outside thermometer, the inside thermometer, and then feel with the hand the condition of the heating medium, be it flue, pipes, &c. But no! in spite of all warning the stokehole must be gone to first, and there is the waste and worry of having to counteract fire heat and sun heat meeting together. Just think of a fierce sun in May and June, water pipes so hot as not to be touched, the results without counteracting care, and the waste of material and care involved.

ORNAMENTAL DEPARTMENT.

Did a deal of potting as respects Euphorbias, Poinsettias, and Ferns, but our chief work was bringing up leeway with bedding, &c. Our Calceolarias are large plants in trenches, and lifted with large balls, so as not to feel the moving. In fact, we pot but little, and find that Calceolarias, Iresines, Ageratums do best when raised with balls after being planted out. The economy as respects watering is wonderful when contrasted with keeping the plants in pots.—R. F.

TO CORRESPONDENTS.

BOOKS (*T. Bird*).—We know of no book on Flower Gardening with coloured plates of the flowers. It would be too expensive for general use.

RATING MARKET GARDENS (*Inquirer*).—We published in No. 508, December 22nd, 1870, page 498, not only our opinion, but the decisions relative to rating. You must refer to that number.

CAST IRON VASES (*L. A.*).—Write to Mr. Fox, Arcade, Royal Horticultural Society, South Kensington.

CALADIUMS (*G. D. W.*).—They are far too numerous and nearly alike to be named from single leaves.

EXCRESCENCE ON CONIFER (*T. E.*).—The curious woody out-growth on the Conifer you sent us is not, though much like, a fungus; but it is an excrescence of woody tissue, and covered with bark.

VARIOUS (*S.*).—Seed corn must not be mixed with poison. Post cards will not do for queries. We never give addresses.

BUDDING ROSES (*E. K.*).—Bud on this year's shoots.

LAWN SAND (*M. C.*).—We do not know anyone who has tried it.

STOVE FOR GREENHOUSE (*Egremont*).—Being only 16 feet by 8 feet, a gas stove would be best for you, with a tube passing into the open air for conveying away the fumes.

SEEDLING PELARGONIUMS (*J. D.*).—The flowers, snow-white with a crimson blotch on one or two of their petals, are beautiful; but no one can judge of the merits until after seeing an entire plant. Send one to the Floral Committee of the Royal Horticultural Society.

ASTERS (*Julia*).—No. 1 as German, 2 and 3 as French, but there is also a quilled race of No. 2.

BOILER FOR A STOVE (*J. T. H.*).—On the whole we do not think that anything will beat a common saddle-back boiler, but, of course, this as well as an upright tubular is liable to wear out and crack. One thing in favour of saddle-backs, we have frequently patched them up when leaky, but this could scarcely be done with tubular ones. Farther than this, having tried all, we have little prepossession in favour of any kind of boilers, only the simpler they are the better, and with the exception of the common conical, not tubular, we consider the saddle-back the simplest. More depends on the management than the form.

RHODODENDRON LEAVES GNAWED (*M. C. D.*).—The leaves are eaten by some caterpillar. We advise you to syringe the trees with water holding 1 oz. of white hellebore powder to every gallon, and in the evening at dusk. It may also be applied with a rose watering-pot, and only when the foliage is dry. Almost all kinds of caterpillars are destroyed by it. We also find a solution of 4 ozs. of soft soap to the gallon will answer the same end, and act as a deterrent.

CUTTING-BACK PIMELEA SPECTABILIS (*Le Grand*).—The plant being out of bloom ought to be cut back now, but not to the old wood, leaving an inch or two of last year's growth. Keep the plant rather dry for a time, and repot when it has made fresh shoots an inch or two long.

CLIMBERS FOR GREENHOUSE (*A B.*).—Passiflora Countess Guiglini is a fine white, blue, and rosy purple-flowering climber, and Kennedya Marryattæ a fine scarlet Pea-shaped flower. Tacsonia mollissima, deep shaded pink or rose, is good and free grower, and so are the two former.

REMOVING BEECH, LIME, AND HORSE CHESTNUT (*J. P.*).—You may remove the trees you name. They could have been transplanted with much greater safety if they had been dug round this spring, and we should be inclined to adopt that practice now if a moist time could be depended on. At the same time we should cut-in their heads considerably, so as to balance the loss of roots consequent on taking out a trench round the stems. The pruning should leave the trees in good form though considerably reduced, and by thinning-out and shortening the strong and irregular growths you may form very handsome heads. Transplant in autumn as soon as the leaves fall, taking-up the trees with as many roots as possible, and being very careful of the small roots, and if you could preserve a ball to each tree there would be a greater prospect of success. Plant with the centre rather higher than it was before moving, carefully spread out the roots, cover them with fine soil, and make firm. Secure the trees against winds.

MELON LEAVES SCORCHED (*A. F.*).—The leaf is scorched, probably from the plants being kept very close and moist, so that their leaves are unable to withstand sun. Give more air, especially early in the day. We do not think your plants are affected by the disease. Keep them also drier, and we think they will go on well.

CONSERVATORY PLANTS NOT THRIVING (*Inquirer*).—We cannot account for the plants not thriving, but from the whitened appearance of the leaves we should consider the causes to be the glass and the insufficient ventilation. With what description of glass is the house glazed? We should try the effect of a slight shade, and admit all the air possible. We hardly think it can be due to any mineral substance in the soil, but it may, and soil of a heavy nature overlying chalk is not good for Camellias, nor, indeed, for most greenhouse plants. You are quite right to try to get the roots of the plants in good condition; unless they are in a healthy state you cannot have good growth, and without suitable compost you cannot attain that end; therefore, secure proper soil at once. Medinilla magnifica may be cut back to the old wood, but then it will not break so freely as from the young wood. We have cut back the plant successfully, keeping it rather dry at the roots until it had broken, but encouraging it with a moist atmosphere, and when the shoots were a few inches long repotting and placing in a hotbed so as to encourage free root-growth. We should not like to place Orchids on an open stage 9 inches above hot-water pipes. In addition to the troughs you propose for placing on the pipes, we should also have the shallow troughs, which during the growing season could be filled with water, and the pots containing the plants set on inverted saucers so as to be clear of the water. When the plants are at rest the troughs would need to be dry.

NEWLY-PLANTED VINES NOT THRIVING (*An Irish Subscriber*).—The Vines are making very poor progress owing to their being in an outside border and the soil being so cold. When the ground becomes warm we think they will make good progress, and to secure this sooner we should cover the border with 18 inches to 2 feet of hot dung, which will set the roots in action, and with these in a good condition you have nothing to fear. Encourage growth with a good heat, and plenty of moisture and shade from bright sun for a time.

EVERGREEN FOR SCREEN TO A ROSERY (*W. M.*).—At the end of September or early in October you may plant the American Arbor Vitæ, which forms a neat and good screen, bears cutting well, and may at once be planted of the height required. It is of no use as a hedge, as it is too weak to turn anything. Holly forms a very fine strong hedge, but it is of slow growth. Yew is the best evergreen of all, and bears cutting better than any. Evergreen Privet is quick-growing and good, and for beauty we think Berberis Darwinii is superior to them all. They may be transplanted readily during moist weather at the end of September or beginning of October.

RHYNCHOSPERMUM JASMINOIDES PROPAGATION (*F. R. H. S.*).—Cutting off a flower will do no harm to the plant, and there is no necessity to cover the wound with clay, it will heal over better without it. The plant is propagated by cuttings taken off when 3 or 4 inches long, preferring the short stubby shoots. Cut them immediately below the lowest leaves, remove these and all others for about 2 inches up the cutting. Insert the cuttings round the sides of a pot well drained and filled with equal parts of loam, peat, and silver sand, surfacing the pot with an inch of silver sand. They will strike freely in gentle heat, either under a bell-glass or without one, providing they have a close moist atmosphere. Shade them from bright sun. The plants will flower next year if their growth be encouraged. Pot them off as soon as rooted, and keep them in a gentle heat until established. A hotbed used for striking cuttings will answer well, with a temperature of 70° to 75°.

VARIOUS (*F. J.*).—You may safely cut into shape trees of Arbor Vitæ, and the present is a good time; we should use a sharp knife or small pruning scissors. Guano at the rate of 2 ozs. to the gallon may be given Roses once a-week for the next two months, and one gallon will be sufficient for a dwarf. We would use it at the rate of 1 oz. to the gallon, and apply two gallons to a bush instead of one. The flowers should be removed from Tricolor and other Pelargoniums grown for their foliage, also from the Echeveria glauca and Sempervivum californicum.

UTILISING A STRAWBERRY HOUSE IN SUMMER (*Churchill*).—We do not think you could put your house to a more profitable use for market than growing Cucumbers after the Strawberries are cleared out. You could raise the plants in a hotbed, so as to have them ready for planting by the time the Strawberries are out of the house, and having cleaned the house thoroughly you could make a hotbed 18 inches or 2 feet deep; place on it a foot in depth of good rich light soil, and put out the plants 2 feet apart, training the shoots at about a foot from the glass. In this way you might grow a great number of Cucumbers in summer and autumn up to the time you require the house for Strawberries. Volunteer is a good Cucumber, being very free-bearing and of a considerable size. The sprig you enclosed is not that of a Fern, but of the Artillery Plant, Pilea muscosa. It may be useful for market as a decorative plant.

VINES NEGLECTED—CUTTING BOX EDGING (*M. G.*).—As regards the Vines which have not been touched nor pruned since last year we should thin them out, so as to leave the shoots along the rod at 18 inches apart on each side, and we would stop them at the joint above the fruit; or if there be no fruit we would stop them at the first tendril, the lateral we would stop at the first leaf. Now is the time to clip Box edging. You may cut it as much as you wish, choosing, however, moist weather. The Briars planted last November will need to have all the side shoots removed, save one or two of the strongest, and the sooner this is done the better. You may bud them any time from the middle of July to the beginning of August.

CACTUS CULTURE (*Amateur*).—The pruning should be confined to cutting out the old bare shoots. Encourage the young shoots, especially those from the bottom. Thin out the shoots when the flowering is over, and repot at the same time. Give a moderate shift, say a pot of 2 inches greater diameter, drain well, and use a compost of two parts light turfy loam, and half a part each old cow dung or very rotten manure, and crocks and sharp sand; pot rather firmly. Be careful not to overwater until the roots have taken to the fresh soil, but keep the soil moist.

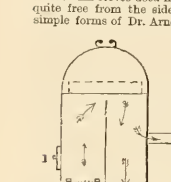
HUMEA ELEGANS CULTURE (*Greenhouse*).—Sow the seed at the end of May or early in June in a pot or pan of two parts turfy loam, and one of leaf soil, with one part of sand. Just cover the seed with fine soil. Place the pots in a frame with a gentle heat, and keep them near the glass, and just moist. When the plants are up admit air freely, and as soon as they are large enough to handle prick them out in pans at about an inch apart, and return them to the frame. When they are fit to pot off singly in 3-inch pots do so, using the compost before named; place them in a cold frame, and water them overhead daily, but avoid making the soil very wet. When the roots show at the sides of the pots, and before they are very closely matted, shift the plants into 4½-inch pots, and so on until autumn, when they will require 7-inch pots. They cannot have too much air after they are established in small pots, nor, indeed, at any time, especially in winter, so long as they are secure from frost. The main thing is to keep them slowly growing, and to shift them into larger pots as those they are in fill with roots. They should have good drainage, and

a compost of two parts turfy loam, one of leaf soil, one of old manure, and a sixth of sharp sand. They may be put into 9-inch pots in February, and have 11-inch or 13-inch pots at the close of March. Liberal supplies of water are required, but do not give any until the soil is dry.

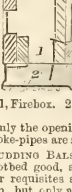
HYDRANGEA CULTURE (*Subscriber*).—We presume you are in possession of young plants; if not, you should put in cuttings at once, taking them from the old plants when about 4 inches long. Take out the eyes from the parts inserted in the soil as well as the base of the leaves. Insert them singly in small pots, place them in a gentle heat, and cover them with a hand or bell glass. When rooted admit air, harden them off, pot them in 4-inch pots, and place them in a cold frame. If they show for flower remove it; but the cuttings should be taken from such parts as are not likely to flower), place them in a cold frame, keep them well supplied with water, and give abundance of air. They may be kept in the frame during the winter, the pots plunged in ashes or in a cold house. In January you may repot, and place them in any house with a gentle heat, as that of a vinery or other house. They will succeed with gentle forcing, such as that given to Deutzias and other hardy shrubs. Six-inch pots will be sufficiently large, and a compost of two parts good friable loam, with one part of old rotted manure and a sixth of sharp sand, will grow them well. The plants are benefited by weak liquid manure when the trusses show.

BOTANISTS' VASCULUM (*C. F.*).—Any of the principal seedsmen or ironmongers could supply you.

ARNOTT'S STOVE (*Medicus*).—For a small greenhouse it is very efficient. We do not know where one can be purchased, but any ironmonger or bricklayer could make one from the following, which we published some years since:—All stoves placed in plant-houses should have a small firebox standing quite free from the sides. A good stove for such a purpose would be the simple forms of Dr. Arnott's, intended to represent one about 3 feet square and a trifle more than 4 feet 6 inches in height. The small fireplace is enclosed in an iron box, with thin firebricks up the side. An iron division comes down not quite in the centre, and leaving a space open top and bottom for the heated air to go round and round as well as out at the smoke-pipe. 1 Is the feeding-door made airtight; 2, the ashpit door, also airtight, with a small valve in it to turn round to regulate the draught for the fire. A very small quantity of fuel will in such a stove give out a long continuous heat; and being placed in the centre of a small house, the heated air will ascend and pass along next the glass to each end, whilst the cold air will keep coming along the bottom or floor, to be brought again and again in regular rotation against its sides—sides which, though hot, will never burn. The air



gerously warm if the valve at the ashpit is attended to. When fairly lighted and the iron warm enough, a small hole at the valve, of the sixteenth of an inch in diameter, will give enough air to support a slow combustion. When the heat declines give a little more air. To keep the air moist, place a pan of zinc or other metal 2 or 3 inches deep on the top, supplied with water, or the top may be so cast. If desirable, the pan may be concealed by an open, conical, light cap. The vessel and the top are shown as dotted lines. The plate at top will be so much hotter than the sides, that the top may be formed into a small boiler, and pipes with hot water taken from it, or a tank of water be heated. Coke broken small is the best material for such stoves. To insure draught, with a small or no aperture at the ashpit, after combustion has fairly commenced, the smoke-pipe should not proceed many feet in a horizontal position, but should soon rise upright or in a slanting position against the back wall of the house before going outside; and the longer the pipe the less heat will be lost. Previous to cleaning out the ashpit a slight damping of the ashes will be necessary. Keeping the principle of the Arnott's stove in view, and substituting solid 4-inch brickwork for the iron, there will be little difficulty in making them. Mr. Rivers has the fireplace or firebox in the middle, and above the firebox a firelump is set up about 3 inches from the mouth of the smoke-pipe, a similar space being left at the ends, which thus acts something like the partition in the iron stove in regulating the draught. Mr. Rivers tells us that for heating a house 30 feet long by 12 feet wide, the stove should be 2 feet 4 inches square, 3 feet 10 inches high; and the firebox should be 8 inches over and 8 inches deep. For a larger house, a larger square and a firebox a few inches larger would also be necessary. In forming the size named, lay out a space in the middle of the house about 3 feet from the back wall, and 28 inches square, lay that with one course of bricks and mortar, brick-on-bed. On this, at front and in centre of it, fix your ashpit door that will fit tight with a small ventilator in it, mark out a space from 7 to 8 inches wide, and to within 11 inches or so of the opposite side: that will be the base of your ashpit. Build all round it until you get as high as, or a little above the height of, your ashpit door; then place bars across for the bottom of the fireplace, form your fireplace of firebricks 8 inches square and that deep, or of four firelumps of the size of 8 inches deep, finish with brickwork outside, and above the height of the fireplace place your double door for feeding. Use brickwork for the necessary height above them, and cover with a plate of iron three-quarters of an inch thick. A firelump should stand 2 or 3 inches in front of the draught-pipe to equalise the heat, &c., and the smoke-pipe should not be far from the top. With such stoves Mr. Rivers finds the horizontal pipe should not be long, but that it should enter an upright or sloping flue at the distance mentioned. He gives moisture by an evaporating-pan of water; and by fixing a small cistern, or rather boiler, on the top, he can easily heat pipes or tanks of water. The following shows a rough vertical section through the centre, on much the same scale as the others—viz., 5 feet to the inch, only the openings by the sides of the firelump equal to those in front of the smoke-pipes are not shown.



1, Firebox. 2, Ashpit.

TRICOLOR PELARGONIUMS FOR EXHIBITION—DISBUDDING BALSAMS (*Rev. R. S. D.*).—We consider your plan of plunging in a hotbed good, as it must promote root action and a good leaf-growth; the other requisites are to give them plenty of air, and to shade from very bright sun, but only a few hours in the hottest part of the day. Do not syringe the plants overhead, and do not water excessively, but let the soil become dry, and then give a thorough supply. Withdraw the pots from the hotbed gradually. Afford protection from heavy rains, otherwise you can hardly expose the plants too fully in order to have the colours well defined. From the time Balsam plants have buds as large as Peas they take about a fortnight, so that you can see when to discontinue picking off the buds for any required time of blooming.

REMOVING ROSE TREES (*C. Y.*).—You may remove Rose trees in September but you will need to take up the roots very carefully, tie them up in damp moss, and damp the foliage before covering with the mat. They should be kept from the sun, and after planting we should sprinkle them overhead twice a-day, morning and evening. If you could afford shade from bright sun, their chance of becoming speedily rooted would be greater.

FLOWERING SHRUBS AND TREES (*B. H.*).—Of flowering shrubs Berberis Darwinii, Laurustinus, Rhododendron in variety, Cydonia japonica, Deutzia gracilis, Lilac of sorts, Philadelphus coronarius, Ribes in variety, Spiræa ariæfolia, S. Douglasi, Weigela rosea, and double Gorse or Whin. Of trees or large flowering shrubs, scarlet, pink, and double-flowering White Thorn, Scotch Laburnum, double-flowering Cherry, scarlet and double white Horse-chestnut, Tulip Tree, flowering Ash, Mountain Ash, Robinia Decaisneana, and Rhus typhina. Though these are very desirable we apprehend you have not decided to do without the usual evergreen kinds, which are quite as essential, if not more so, as the flowering ones, which are for the most part deciduous.

SELECT BEDDING GERANIUMS (*An Amateur Florist*).—*Scarlet:* Jean Sisley, Cybister, Grand Duke, William Underwood. *Rose:* Amy Hogg, Rose Rendatler, Blue Bell, Christine. *Salmon:* Monsieur Barré, Gloire de Corbeney, Emile Lieau, and Eugenie Mezard.

CHEAP GREENHOUSE (*Stafford*).—The small one was erected for the sum stated: but remember, if you want such things as greenhouses cheap, you must superintend the erection yourself, and that would be of no use unless you did some of the work yourself. The firm to which you allude do sashes beautifully, and, as you say, you can have glass cut to any size. However, everybody must live by their labour, and if you employ regular tradesmen for everything you could not do it for the money. For cheapness, why have sashes at all? Why not have rafter sashbars—say, 1½ by 3¼ inches, and 20-inch glass between them? Some time ago, having a wall facing south, we took in a width of 11½ feet, and covered a length of 75 feet with wood and glass for £30. The wood and glass cost £16, but wood since then has become dearer. If you indulge in hobbies you must pay for them. For a very small greenhouse a friend of ours spent four times the amount.

REFUSE VEGETABLE MATTER: FOR MANURE (*C. A. J.*).—The stems of Cabbages, Rhubarb, &c., should be chopped into small pieces, as they then decay rapidly. No fresh vegetable refuse dug well into the soil promotes the breeding of insect vermin—it is beyond their reach. We know of no remedy against the "white blight" at the roots of your Mignonett, but we should like to have tried one part carbolic acid mixed with four parts water. It might be applied to the roots of one plant, and we should like to know the result.

GOOSEBERRY CATERPILLARS (*N. S. S.*).—They were destroyed by the post office punches. That you describe with yellow rings is the larva of the Gooseberry Saw-fly, Nematus Grossulariæ. All the caterpillars may be destroyed by dusting with white hellebore powder. Root-prune your over-luxuriant Currant bush.

APHIDES ON CUCUMBERS (*A Subscriber*).—It is the worst case of aphis we have ever seen, the leaf swarms with them, both green and black. Shut-up the house closely, and damp all surfaces except the foliage of the plants, then fumigate with tobacco, taking care to deliver the smoke cool, as otherwise there is a danger of scorching the leaves. Syringe well next morning, and shade from bright sun, so as to lessen the necessity for air-giving—in fact, keep the house as close as you can consistent with the safety of the plants, and keep it moist, without, however, wetting the foliage. When the leaves are dry in the evening again fumigate effectively. Pursue a similar mode of treatment the following morning, and fumigate every alternate night for a week. We could name many things that will destroy the aphis, but the foliage of the Cucumber is so tender as not to admit of their application. Strong shag tobacco, or tobacco paper on which you can depend, should alone be used.

PLANTS INSECT-INFESTED (*Cedars*).—The Pelargonium leaves are blackened with the deposits of aphides. Fumigate with tobacco. The Orange leaf is covered with black fungus in consequence of being attacked with scale. The remedy for this is to wash every leaf with a sponge, using a solution of soft soap, 4ozs. to the gallon, and adding to every gallon a wineglassful of spirits of turpentine, as hot as the hand can bear. For the scale on the Kennedya lay the plant on its side if in a pot, and syringe with the above solution at a temperature of 140°, turning the plant round so as to thoroughly wet every part. If the plant is on a trellis remove any plants beneath it, and then well syringe. Wash or syringe with water after three hours. It may be necessary to repeat the application. Orange trees require to be frequently sponged to keep them in good order, and to preserve plants in good health the insect pests should be battled with on their first appearance.

NAMES OF PLANTS (*A. W. E.*).—1 and 4, Asplenium flaccidum; 2, A. flabelliforme; 3 and 5, Adiantum hispidulum; 6, Pellæa hastata; 7, Selaginella Kraussiana; 8, Asplenium Adiactum-nigrum. (*F. T., Bournemouth*).—1, Calluna vulgaris; 2, Erica cinerea; 3, Erica tetralix. (*R. H. W.*).—Limnanthes Douglasii.

POULTRY, BEE, AND PIGEON CHRONICLE.

MATING.

"Ladies, the tale that I relate
Instruction seems to carry,
Choose not alone a proper mate,
But proper time to marry."—*Speaker.*

"Proper mating is the science of good breeding."—*Rural New Yorker.*

COUSIN, you have hit on the truth, and when we have a poultry convention we will ask you to give us a lecture upon the subject. In the meantime we shall make use of it, and hope this will meet your eye. We are afraid our first quotation will cause some to ask themselves how long it is since they read it. Imagination will carry them many years back, when they stood up on certain days (they were Wednesday and Saturday with us, 1821), with the old "Speaker" in their hands, for reading and elocution, and began the tale from which we quote.

"I shall not ask Jean Jacques Rousseau
If birds confabulate or no."

If they could they would often give us a bit of their mind on the subject of mating. We have seen and still see such curious proceedings; we hear such complaints of disappointment when nothing else could be looked for, such anticipations of success that will never be realised, and such senseless hopes from most incongruous matings, that the mine being charged, the match was applied by our New York friend, and we determined our experience should be made public.

Before putting birds together to breed from, we should be quite clear in our minds on the subject of our requirements—whether size, symmetry, feather, or all of them. We should be careful to note the results of past experiments. We should set ourselves no tasks that we cannot perform. Some results may be attained in one season, others are the work of years. We are not without some guide; it is found advantageous to mate a two-year-old cock with pullets, or a twelve-months cock with hens. It is admitted by all large breeders that defects are more surely transmitted by hereditary descent than beauties or excellencies; therefore choose perfect birds. We had a Silver Sebright cock so perfectly beautiful, so admirably laced, such a tail, such a carriage, but he had a single comb. We thought it terrible to lose the services of such a bird. His parents had faultless double combs, the correct shape, the perfect colour. His was an accident. We would breed from him, but as we believe in such matters, in the effects of appearances, we dubbed him artistically. We cut through the thick of the comb, divided it down the centre, and notched it across. It almost deceived us, and we tried him as one of our stock birds. It proved a bad breeding year, and the only chickens were his. *They all had single combs.* How many breeders of Dorkings have been led astray, like ourselves, by the best bird we ever bred, *only* he was a claw deficient on one foot. His parents had all their claws, and it must surely be a sport, but the fault ran through his progeny; four-clawed birds were common among them.

There was never a greater triumph, as the result of skilful mating, than the manufacture of the Sebright Bantam. If let alone the breed would return to the old brown, white, black, and spangled fowls that were the ingredients. If the lacing becomes faint, recourse must be had to a black hen crossed with a Sebright cock; her produce, much too dark, must be put to the faintly-laced birds. The black hen, having brought the requisite colour, is done away with, but her dark descendants are skilfully mated till the good effect of her colour is seen throughout the yard. Wherever colour is the desideratum the principal drawback is the time employed in the operation, years being necessary. It may often be shortened by making many runs at the same time, all differently composed; but this requires appliances that are not within the reach of all. Where size is required, the most successful choose the largest possible hen, and a perfectly shaped but middle-sized cock.

The secret of all perfect mating is to use no bird with a positive defect. It is to seek in both parents that which you wish to perpetuate. This is true not only of the stock birds you are using, but also of those that are running with them in the yard. Nothing that is objectionable should meet or offend the eye. In breeding, it must be recollected, perfection, or the approach to it, is difficult to attain with all the means and appliances to boot, and therefore, if anything be neglected, there is small hope of success. The downfall of many is, it is thought that faultlessness in one parent may overcome slight defects in the other. This is a fatal error. In mating for feather, degrees of merit may be taken into consideration. Thus, in a Silver Poland or a Spangled Hamburgh, it would be worse than useless to seek to produce the correct white sickles with black moons by means of birds that lacked them themselves.

Patience, common sense, and close observation will succeed in accomplishing anything that can be reasonably desired. The most legitimate object an amateur can seek, is to maintain the purity of a breed and at the same time to develope its good points. This may at first appear paradoxical, but it is not so. Proper food and care, joined to a careful selection of the parents, will develope the useful properties. In the egg-producers health will prove itself by fecundity, in the table fowls by size and weight. All this may be done without crossing.

It is said that a recent French king, not remarkable for the quality of his wine, was in the habit of mixing many sorts together till he attained, according to his palate, the acme of drinks. He then insisted on his attendants drinking it, declaring it excellent. The advocates of crosses belong to the same category.

PURE BREEDS VERSUS CROSS BREEDS.

I HAVE occasionally seen the merits of pure *versus* cross breeds discussed in your Journal; for the information of some of your readers I will merely state the following, and leave them to decide the case for themselves. One of my Dark Brahma pullets, hatched in April, 1871, commenced laying early in November, continuing, without intermission, laying daily till the commencement of the new year; she then ceased for four or five days, but recommenced regularly, only omitting an egg every third or fourth day. As she was not an exhibition bird I was in hopes she would shortly commence to cluck, giving me the chance of an early brood; but she laid steadily on, with only the intermission of a few days occasionally, until the middle of March, when on five occasions she laid an egg before 10 A.M., and another before 10 P.M. of the same day. The eggs were perfect in shape and size, but a trifle brittle in shell, so I administered at intervals two five-grain Plummer's pills, which checked the double-laying; since then she has laid continuously, evincing no disposition to sit, up to present date—June 3rd, her comb being as red as ever, and her condition in no wise impaired. I may add she is perfectly pure bred, and I now leave the advocates of barndoor fowls to say whether they can beat us lovers of pure breeds.—F. S. F., *Halifax, Nova Scotia.*

DORCHESTER SHOW UNDER TWO ASPECTS—IN RAIN AND IN SUNSHINE.

No. 2.—IN SUNSHINE.

THE stifling crowd gone, the heavy clouds dispersed, and the brilliant sunshine being poured on us in its utmost splendour, the spirits of man and bird, as I have remarked, revived.

First, the Show was larger than formerly, but many of the birds were in a dirty condition while others were perfectly clean, thus showing that the dirt had not been acquired during the Show. Surely there might be a little more attention in this matter. Birds may be made perfectly clean, as witness the Rev. F. Tearle's first-prize White Bantams, perhaps the most beautiful ever shown.

But I am in front of the *Spanish*, eight pens of cocks and thirteen of hens: excellent birds, but the Bristol birds, Mr. E. Jones's, beating all. Among the *Dorkings* were many fine-bodied fowls, but the heads and combs were coarse. The *Cochins* in all classes were more numerous than before, and yet, save at a show, how seldom one sees a Cochin! while *Brahmas*, or half-Brahmas, are everywhere. The *Game* cocks were large-limbed noble birds. The *Hamburghs* deserve a special notice. A few years ago they were to be counted on one's fingers at the Bath and West of England Show, but this year they formed the largest class; and considering that their feathered beauty is so great, especially when seen near at hand, we may say that they were the most attractive of all the birds shown. The beauty of the Duke of Sutherland's bird was very great. Both the Spangled classes were to my judgment superior to the Pencilled. Truly it was a treat to look at such birds. Yet it is only at a show in the south that they are seen. I heard a decent man call them "speckled Dorkings," and I was asked "what those funny spotted fowls were." I feel sure that this exhibition will cause a Hamburgh mania in the neighbourhood of Dorchester.

Now let me ask, Where were the Golden *Polish* fanciers? Where indeed, for only one entry in each class! Is there no one who likes to be sure of at least a second prize? Please do not let the beautiful Golden Polish become things of the past. The Silver Polish were better in numbers, but not so numerous as they ought to have been. The same may be said of the original Polish, the Blacks. I would recommend Polish fowls to those who could make an aviary in their garden but could not allow fowls their liberty. The Polish are cleaner and happier in confinement, for if at large they soon lose themselves, being unable to see well. In confinement, their wants being supplied, unable to see well. In confinement, their wants being supplied, they are clean, content, and very beautiful. The *French* fowls were numerous, but not worth looking at in their moulting and dirty condition. It is a wonder to me they have so many admirers, but everyone to his taste. Of the Sebright *Bantams* there was but one pen, and that bitter bad. The Black Bantams were good. Of the excellency of the first-prize Whites I have already spoken. The Game Bantams were none too good, they were easily beaten by Mr. E. C. Phillips's pen; but an exception must be made in favour of Mr. G. Hall's first-prize cock, an extremely gamey-looking little fellow.

In regard to the birds in the Any other distinct variety class, I must notice the *Malays* in this way. I had just before been looking at the pair in Mr. Wright's new book, and must testify to the wonderful accuracy and lifelike character of those pictures. Malays were always made too pretty before. They are strange-looking birds, and usually at first inspire dislike, but hold the affections of those who take to them. I for one should be very sorry to miss them from our shows, they being so unlike all others.

I now come to the *Pigeons*. I was glad to see that they were fed in earthenware dishes, and had not their food scattered on the floor; this gave a better chance for heavily wattled birds. Still rather deeper vessels of zinc or tin fastened rather high up in front of the pens, are better than the almost flat earthenware three-cornered dishes.

The Carrier classes were chiefly remarkable for the prevalence of dun-coloured birds. But there should have been greater entries in all the Pigeon classes, when one considers there was actually only one hen Pouter and only one pair of Almond

Tumblers. Passing by the Carriers, which were good, I came to the Pouter cocks—only four pens, and the first-prize bird the only really good one. Three pens of Runts, a class of birds scarcely kept as generally as they deserve to be.

The Dragoons were more numerous, indeed they are clearly becoming very popular, and kept in colour and points as unlike as possible to Carriers, are very interesting; the first prize a pair of beautiful Silvers with proper coloured bars—I mean, of course, brown bars—belonging to Mr. William Bishop, of Dorchester. Their light and elegant frame pleased me much. Mr. Allsop's second-prize birds were, on the contrary, much heavier and more Carrier sized and shaped birds; they also Silvers with brown bars. I notice that a correspondent recently suggests that the Birmingham Columbarian Society should decide as to the colours of the bars. I will remark that their decision has been already made, and in favour of brown bars—*vide* their article on the Dragoon Pigeon, vol. xviii., page 298, of this Journal, being the number for April 21st, 1870. As even the colour of silver is not well known, it being thought to be whitish, and that black must be a good contrast to white, whereas on the contrary it is light drab, I will reproduce the passage from the article—"Silvers are frequently bred from and crossed with Blues; but it is better not to do so, for, as a consequence, too often the prodnce of such a mixture is a muddle of both, resulting chiefly in the production of birds of a silver colour with black bars and dark flights, which are, therefore, not regarded as Silvers but as washed-out Blues. True Silvers are as follows—Colour whity-brown or very light drab, with darker drab bars, neck, and flights. They should have light horny bills and nails. The hackle is not so beautifully resplendent as in the Blues, the iridescence being greatly diminished by the drab tint of which their colour consists. The eyes of this variety partake of a rich pearlish kind, without a particle of yellow observable in them. They are a very attractive variety," as undoubtedly they are.

The pretty Fantails were, as usual, numerous, and so good that nearly all were noticed. Among the three pens of Trumpeters was a beautiful pair of Blacks belonging to Mr. Jones, of Fulham. Barbs good, so likewise Archangels. Turbits too few, likewise Tumblers—only three pairs to contest for four prizes. Owls only two pairs. Jacobins, on the contrary, mustered strongly. Any other distinct variety, five pens only. I hope, wherever the Show be held next year, there will be many more Pigeons.

Having satisfied myself with my survey, I proceeded to see how the Bath and West of England Show looked in sunshine.

"Blest power of sunshine, genial day,
What power, what life, is in thy ray!"

Power and life indeed. Before there was nothing but misery, but now pleasure seen on every face. Proceeding to the band, around which were abundance of seats, and I thank you, excellent Council, not only seats but boards for the feet—very necessary this cold June, I took my seat with my face towards Dorchester, so that the whole park and Show were before me; I on the top of the slope and the park gradually sloping townways, for in the valley is the town. A couple of spires rose above the avenues, and one tower, that of St. Peter's church, the only church which escaped the great fire of 1613, when three hundred houses and two churches were burnt, very few houses escaping. But neither man nor woman perished, saith the old history; owing, perhaps, to the fire beginning at two o'clock in the day. The town of Dorchester seems to lie almost in a square, and on three sides has spacious avenues, planted in 1700, of sycamore, horse chestnut, and elms. The streets are rectangular and regularly built, hence squareness and its results are marked upon the place. A view over a wide valley is always pleasing, especially with downs beyond it. In wandering through the Show I could but think what a useful and pleasure-giving thing is such a Show. It is like a better edition of a large old fair—beautiful horses and cattle, without the noisy rogues of dealers and the screws, and in addition many things which an old fair had not. Verily this is an improving age; indeed each age is in turn an improvement upon its predecessor—less coarse in manner, and with additional comforts and conveniences for all. Upon the highest ground of all stood Suttons' and Carter's seed tents. It chanced that I had never been in them before, so I entered first Sutton and Sons' and then Carter's. Both are very imposing-looking structures, with a lengthy and ornate frontage. Entering Sutton & Sons' at the end, I could not fail being struck with the elegance of the arrangements. Seeds, especially agricultural, are not picturesque, but good taste made a picturesque tent. One looked on the samples, and then, arranged at the back, were specimens of the Grasses, each bunch formed into a fan-shape. So there were the large sample-bags, and, behind, grown specimens. Indeed the arrangements were tasty in the extreme, and the whole well bore out the high tone and character of Sutton of Reading. The same may be said of Messrs. Carter's display.

Passing down the slope of the park viewing carriages, machinery of all sorts and sizes, I essay to enter the cattle sheds, but could not venture, especially when one had been wet-footed for hours. Still I will and do see the horses, and have the confiding noses of pet ponies thrust into my palm, hoping for biscuit or bread. "Bless you, sir, no money would buy that pony. The young ladies drive it and make an awful pet of him." N.B.—I pat that pony again and again, and allow him to thrust his soft nose again and again into my palm.

But my train starts at 7.10, so I must go, and I mount an omnibus, one among a hundred conveyances, and the hundred drivers struggling for places, and shouting for passengers, in the quagmire outside the entrance. Slowly we move on through a crowd that appears to like being run over. The avennes and the streets are now bright with sunshine and holiday-makers. What a nice old place! What capital avenues! "My bosom's lord again sat lightly on his throne." I viewed all things under a different aspect to that of the morning. I admired the jollity of an English agricultural crowd. I saw little drunkenness; that, I fear, would be a later exhibition. Slowly, very slowly, we threaded our way, at length reached the station; saw Bristol and Yeovil trains off, heavily laden, then stepped into my own, which was not inconveniently crowded, and saw opposite me my friend of the morning—quite friends now, having been to the same place and seen the same sights, and by midnight I was in my own rectory.—Wiltshire Rector.

MANAGEMENT OF POULTRY AT EXHIBITIONS.

It is very amusing to me to learn that the omission of a word or two causes Mr. Wright to be so hilarious as to grin at such a simple thing, and he need not fear my begrudging him his laugh. Probably he enjoyed the fun as much as I did when he some time ago seriously advised Brahma breeders to "cut neatly round with a pair of shears" the vulture hocks of a bird intended for breeding purposes, and you would then be able to breed birds with hocks which would please any good judge! What I intended to say, and what I fancy most of my readers inferred from my previous remarks, was, that birds cannot at first and without water eat too much food to be injurions to them. But when the water-can is filled while the pen is empty, a bird after a long journey will, on being put into the pen, at once rush to the water, and before touching a bit of food satisfy its thirst, and then commences the mischief.

When Mr. Wright has had some experience in the management of shows and has seen the letters which follow every show, he will, I think, come to a different conclusion about the possibility of the starvation of birds.

After the second Crystal Palace Show, two gentlemen living at Bristol, and well known to Mr. Wright, wrote to us stating that through the delay in the delivery by the railway company, their birds had been killed from want of food and from cold. One bird was a Brahma and the other a White Cochin, and I fancy neither of these birds was quite so long as a week without food. With regard to the arrival of the dead Brahma he was, when taken out of the basket, warm, and another bird which was delivered at the same time was so exhausted that he could not stand, and had he been detained a little longer there is no doubt he too would have died from starvation.

A friend sent me a week ago a pair of Spanish pullets to prepare for him for the Bath and West of England Show. They were put into a pen and fed three times a-day. Their first meal consisted of wheat with a little hempseed at midday, barleymeal mixed with milk, and at night the same food as that given in the morning. Every grain was eaten up at once, and they were always ready for more food, and yet these birds in seven days, with such simple fare, and with a run every alternate day for an hour, increased in weight more than half a pound, and I maintain this must always be the case.

I am afraid we might continue discussing these matters for some time; this will therefore be my last communication on this subject. But before concluding I must congratulate Mr. Wright on the splendid work he is now publishing. It certainly enters very minutely and fully into all poultry matters. The engravings, both coloured and plain, are excellent, and I have read each part published with great interest.—W. J. Nichols.

CROSS-BRED FOWLS—USE OF FARM FOWLS.

As in your columns I often see the Brahma-Dorking recommended as the best cross, I will state my experience of it for the benefit of those who have not yet tried it. I am no lover of cross-bred fowls, having proved by experience that pure breeds are more profitable and prolific. I have tried the Brahma-Dorking cross several times and both ways—viz., with a Dorking cock and Brahma hens, and with a Brahma cock and Dorking hens, and have always found it unsatisfactory. I have also found that the chickens hatched from this cross are as delicate as pure Dorkings, that the pullets are bad and late layers, and that they are not equal to pure Brahmas as table fowls. The Houdan-Brahma and Houdan-Dorking crosses I have also found unsatisfactory.

The most satisfactory cross I have yet seen is between a Duck-

wing Game cock and Dark Brahma hens. I think that these birds will be found the best for a farm or unconfined space if many chickens are required; the Game cock, being an active lively bird, will lead the hens well about in search of food. The chickens raised from this cross are hardy, good layers, early ready for market, and unsurpassed as table fowls. The preference is given to Duckwing Game cocks, as they are rather larger than the other Game varieties, and match better in colour with the hens. I would recommend that on no account should any cross-bred birds be kept to breed from, as their progeny deteriorates.

What a pity it is that farmers will not see how profitable fowls may be made. I have just been over a friend's farm, and he has been telling me what bad crops he had last year in consequence of the vermin. He told me also that his best crop was in a field next to his stackyard, and said that if it had not been for the fowls it would have been a very heavy one. I tried to explain to him that it was through his fowls clearing this field of vermin that this particular crop was better than the others, but I could not make him believe in their usefulness.—C. L. Sharman, *Finchley, Middlesex.*

SILVER DRAGOONS' BARS.

We have read with considerable pleasure the discussions which have been published of late in your Journal on this subject, and we agree with you that such little controversies do rouse attention to the subject, and oftentimes with a good result do they terminate.

Much has been said as to the proper colour of Silver Dragoons' bars, much more might be said, but the subject has been pretty well ventilated—so much so, indeed, that the dullest of our fellow fanciers can clearly see through it, and thus solve the problem for themselves; in short, and in fact, the question black bars or brown bars is simply a matter of choice, upon which a difference of tastes might be expected, and whether the matter be decided now by one or twenty fanciers it will still remain an open question, to be left to the discretion and preference of whoever may be selected to make the awards where both the kinds may be antagonists.

In your Journal of June 6th you stated that "Mr. J. Bromley suggests that the Birmingham Columbarian Society should decide as to the colour of the bars." We therefore willingly repeat our opinion on the point for the use of those who may value it, and who may have passed unnoticed the number of the Journal in which our views were contained.

Our opinions upon the Dragoon Pigeon were given at some length in your issue of April 21st, 1870, in which all the acknowledged varieties were referred to, accompanied by a portrait of a Dragoon Pigeon. The following paragraph we extract from our notes as bearing upon the point at issue: "Silvers are frequently bred from and crossed with Blues, but it is better not to do so, for, as a consequence, too often the produce of such a mixture is a muddle of both, resulting chiefly in the production of birds of a silver colour, with black bars and dark flights, which are, therefore, not regarded as Silvers, but are looked upon as washed-out Blues. True Silvers may be simply described as follows:—Their colour is a sort of whity-brown or very light drab, with darker drab bars, neck, and flights; they should have light horny bills and nails; the hackle is not so beautifully resplendent as in the Blues, the iridescence being greatly diminished by the drab tint of which their colour consists. The eyes of this variety partake of a rich pearlish kind, without a particle of yellow observable in them. They are a very attractive variety, and good specimens are very scarce, more especially cock birds."

These were our opinions given two years ago after full consideration and mature experience of the breed; but as the subject has lately been freely discussed, and our opinion sought, we have again brought the matter before our members for reconsideration at our last periodical meeting, but the verdict was the same fully confirmed, but this time with many additional voices to proclaim with emphasis the brown or drab bars as the proper and established colour for Silver Dragoons.

Amongst our members we have many admirers of Dragoons, who have made an especial study of them for years, and experience has taught us to prefer in Silvers the brown-barred kind. Indeed, until lately, none other were exhibited, simply, perhaps, because there was not a well-matched pair of black-barred to show. Odd ones now and then were bred, but were not regarded as show birds, because to follow precedent brown-barred birds as standard specimens were required.

So-called black-barred Dragoons were produced as by accident, and not designedly, and they are about as numerous now as they were then. It is true we admire both kinds, and probably if we could introduce any other pretty offshoots from those already known and recognised we should also admire them, for were they white bars, red bars, real black bars, or even green bars, they would doubtless attract our attention, command our admiration, and elicit our praise; but we cannot see the wisdom of attempting to revolutionise a settled characteristic by any sudden freaks of fancy to which fanciers are liable.

It is no new thing to produce the so-called black-barred Silvers; but it is quite new, and an entire revolution of things to endeavour to persuade that no others are perfect, and thus to endeavour to persuade that no others are perfect, and thus ignore the long-known and acknowledged Silvers.

We have, unfortunately, in our category of fancy phrases and names a host of misapplied terms, and those often mislead the amateur Pigeon-keeper, and sometimes ruffle the calmer fancies of the more knowing ones. We are of opinion that such is the chief cause of difference as to Silver Dragoons. Silvers! Ah! there's the question, for in reality there's more against that name than either of the kinds in dispute. The name we think is an inappropriate one, answers as well to one as the other, but, in fact, is unsuited to either, though the term Silver has long been used in describing both kinds. Thus, experienced fanciers would know, that in speaking of Silver Dragoons, Fantails, Owls, Carriers, or Runts, that the brown-barred kind were meant, because the flights and tail feathers of these kinds must be of the same colour, or in accord with the colour in body, whilst the Turbit and Baldhead, being white-flighted and white-tailed birds, are understood to have darker or black bars. It therefore seems folly to endeavour to transfer the title from varieties already established to one not yet in existence, even though it were admitted to be better; for although there are (of Silvers) those which more nearly approach black than their fellows, yet the darkest of these are, in truth, far from being black; and the more intense the colour of bars for Silvers with coloured flight and tail, the more certain is the last-named appendage to be of a bluish cast, and the more variegated with green lustre is the neck of the bird likely to be.

Now, we are not opposed to a change when such alteration is advisable or can be supported by well-grounded argument, backed up by precedent or sustained by sound theory; but by the advocates of the black bar all these essentials seem to be forgotten. It is not sufficient for a solitary pair of dark-barred birds to be exhibited, and because they win a few prizes with certain judges that henceforth none other are perfect. This is surely too much to expect, and we cannot help feeling surprise that, in the controversy which has taken place, the names of one or two fanciers have appeared in support of black bars whose experience should have taught them to use more care and thought in advocating a change of fashion which would alienate scores of persons from the ranks of fanciers, who would thus desert the fancy in disgust at the needless and ever-changing fancies of gentlemen who have been looked upon as authorities, but who, whilst destroying that confidence in themselves, also would aid in the destruction of the admirable variety of Pigeon by which their reputation was gained, and to which breed the highest praises have been given, and by those, too, who now seek to overthrow the very kind of Pigeon they helped to establish.—Birmingham Columbarian Society—J. W. Ludlow, *Secretary.*

Oxford Poultry Show.—The Committee are desirous of adding to their schedule a class for Black Bantams, but it being the first Show held at Oxford our funds will not admit of giving prizes in every class. We hope with the assistance of the fanciers of those beautiful little birds to give a cup for that variety. The Rev. G. S. Cruwys has kindly promised a guinea. The prize schedule will be in print next week. We shall be glad of subscriptions however small.—Joseph King, *Hon. Sec.*

EVENLY-MARKED CANARIES AND MULES.

The question is—(presuming of course that a bird has a regularly formed cap, extending from a point a little above the back of the bill to the extreme back of the head, running in a regular line on both sides a little above the eye and forming a complete ellipse, with a pair of regularly-marked wings)—Are there birds evenly or unevenly-marked, or is the cap under such circumstances to be regarded as a mere blot? That is the question; but instead of confining themselves to the definition of how and in what way it is to be regarded as an uneven mark, your correspondents offer opinions on matters totally irrelevant to the subject in dispute.

I will now refer to Mr. Blakston's letter No. 1. The remarks contained therein may be very forcible and impressive in the estimation of Mr. Blakston, but I must confess that I entirely fail to see their force. The writer says, he prefers pencilled eyes and even saddle. Has a bird two saddles? What difference is there between a cap and two wing marks, and two eye marks and a saddle? I know what the writer wishes to say, but he does not say it, and therefore I have as much right to interpret his remarks literally as Mr. Blakston has to interpret those of Mr. Hawman when he speaks of "circular eye marks." Any fancier knows, or ought to know, that this is merely a figurative expression implying that the eye must be encircled by the marking. "Spectacle eye marks" is a common expression with

north countrymen, and to my thinking convey a more correct idea of what is intended. Nobody ever saw a bird with literal "circular eye marks," therefore it is unnecessary for me to dwell further on this point.

With regard to letter No. 2, I am more disposed to listen with respect and deference, as I am satisfied from its tone that it is written by an experienced man, but unfortunately it refers to the Yorkshire fancy only, and I know that the Yorkshire rules disregard everything except the four and six-marked birds. Now if you look at No. 1 letter you will see that the writer in his opinion regards a bird with a clear head and even saddle, as the second-best marked bird that can be produced, whilst the writer of No. 2 informs us that birds so marked are entirely disregarded in his part of the country and are not admitted as show birds. Which is right?

For Mr. Blackston's information I may tell that a horseshoe mark on the breast of a marked bird is regarded by Scotchmen as a regular and good mark.—R. L. Wallace, *Berwick-on-Tweed*.

OUR LETTER BOX.

Hants and Berks Poultry Show (*H. A.*).—We regret that a wrong date was given in our list of shows; but we do not think the entire blame for disappointment should fall upon us. Secretaries should send us special information; and in this instance we published a paragraph noticing the Show and calling attention to the advertisement, which if it had been referred to would have been found to state the date of the entries closing.

Precocious Brahma Pullet (*Neophyte*).—It is very early for a pullet hatched January 29th to lay June 12th, the more so that the weather has not been favourable, or calculated to produce early maturity. In most cases of precocious laying (for we consider it so), the subjects are hatched in the last week in April, and begin laying in August. They thus have all the "vantage" in the way of weather, and even then it is very early; but yours has been accomplished spite of disadvantages. As growth as a rule ceases when laying begins, we are not sure it is desirable pullets should become matrons at such an early age.

Crossbred always Moulting (*T. C. O.*).—We are not friendly to crosses, and never surprised to find they are subject to vagaries. You do not tell us enough. Are your fowls at liberty? Is the hen by herself? We hardly ever know an instance of feather-eating when fowls have a grass run. If their liberty is confined to a paved yard, then they eat their feathers in lieu of something they require and cannot get. We have never known a fowl eat its own feathers. The tail feathers and the quilled feathers of the wing are always left, they cannot pull them out. If the hen has been running with others she must be separated, the stubs are a temptation the other birds cannot resist. While she is alone give her large sods of growing grass, and supply her with lettuces that have run to seed. True Spanish chickens are pied when first hatched, and retain some white feathers for a long time.

Cock's Claws Cramped (*E. E. E.*).—Judging from the way in which you have been treated hitherto, and supposing the bird remains cramped, we advise you to return him, writing first to state the case. We say this confidently, because we know the vendor.

Duckling's Eyes Discharging (*Subscriber*).—Feed your ducklings on oatmeal in the following manner:—Take a very shallow vessel, and put a thin sod of growing grass, covering the bottom, put some meal on the top of it, add water enough to cover the whole barley. If the ducklings are losing strength, add some very small thin strips of raw meat. You do not say whether they are hatched by hens or Ducks.

Marking Chickens Painlessly (*Mrs. D.*).—Mark them in the web of the wing with a red hot iron. It is painless, invisible, and indelible.

Fowls' Necks Featherless (*Elvaville*).—We do not like your feeding, and you mention no green food as part of it. You say nothing of grass. Boiled rice and potatoes are bad food. They are unsatisfying and impoverishing. The latter especially induce disease of the liver. Being dissatisfied, they are subject to a craving they cannot allay, and seek the nearest approach. We do not understand why, but it is probable feathers resemble that they require, and they therefore eat them. You must alter your treatment entirely. Give your fowls in the morning some oatmeal or ground oats slaked with water. You may give some whole Indian corn at midday, and meal again at night. Give them plenty of large sods of growing grass cut with plenty of mould to them. Give them also some lettuces gone to seed. This will probably recover them. They are at present insufficiently fed, and out of health.

Hamburgh Cock's Ear-lobe (*L. H. R.*).—There is no method for making or keeping the ear-lobe white. It is one of the merits of a pure-bred good fowl, and seldom loses character. You need not be discouraged if during moult it becomes spotted with red. When the process is over it regains its pure colour.

Selling Diseased Pigeons (*W. Crook*).—It will be more just to publish nothing more on the subject until after the trial for the recovery of the money you paid Mr. Watkins for the other Pigeons. If you will oblige us by sending a paper containing a report of the trial we will publish it.

Food for Runts (*Amateur*).—Indian corn and oatmeal mixed with water forming a stiff paste, also horse beans.

German Paste—Young Larks (*R. F. K.*).—German paste may be thus made: Take 1 pint of pea flour, in which rub up a new-laid egg; then add 2 ozs. of fresh lard, and 3 ozs. of honey; continue to rub of rapeseed, in order prevent its being in large lumps; when mixed to a fine powder, put it into a clean earthen pipkin, and place it over a slow and clear fire, until warmed through, stirring it all the while to prevent its burning; when sufficiently hot, take it off, and pass it through a fine wire sieve; then add about 2 ozs. of mawseed. Young Larks require great care, being very subject to the cramp; they should be kept in a wicker basket, covered to prevent them flying away. Soak two parts of stale bun, or best wheaten bread, and one part of rapeseed, in cold water for five or six hours; then put it into a piece of clean cloth, let it simmer in water over a slow fire for about half an hour, and form it into a custard by rolling it to a complete pulp, adding to it a little yolk of a hard-boiled egg; feed them with this food until they can feed themselves. This mixture must be made fresh twice a-day, or it will turn sour; a bit of raw beef may be given occasionally. As soon as they get pretty strong with their legs and wings, they must be caged-off, keeping clean soft hay at the bottom of the cages, shifting it for fresh twice a-week at least. When they can feed themselves, give a little German paste, stale bun crumbled very fine, and chopped egg, mixed together; when about a month or five weeks old, cage them off, supplying them with a fresh drawer of sand, a fresh turf, and clean gravel, twice a-week. You may continue the egg, &c. for a short time, and break them off it by degrees, also a bit or two of lean beef; continue this until they have moulted-off.

Pigeons Trespassing (*A. G. B.*).—Your neighbour cannot legally shoot your Pigeons, but as they eat his garden crops, and he has given you more than one notice of the damage done, he could recover compensation for the damage if he sued you in the County Court. He has no right to close the windows in the gable of your house. Why not keep Pigeons that will bear confinement? Being at war with a neighbour is a perpetual blister as well as expensive.

Rat Trap (*J. Y. L.*).—No result came from the prize. Phosphoric paste or pills is most effective in destroying rats.

METEOROLOGICAL OBSERVATIONS,

Camden Square, London.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude 111 feet.

Date. 1872. June.	A.M.				In the Day.				Rain.
	Barometer reduced and Sea Level.	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 ft.	Shade Temperature.		Radiation Temperature		
		Dry.	Wet.			Max.	Min.	In sun.	On grass	
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
We. 12	29.848	58 3	55.4	W.	54.9	66.8	46 8	10 1	43 2	—
Th. 13	29.907	64.3	58.0	N.W	55.8	76.6	55.2	127.0	54.2	—
Fri. 14	30.067	62.2	59 8	E..	57.8	76.3	50.2	118.4	46.8	—
Sat. 15	30.131	70.7	63.8	S.E.	57.7	80.9	47.8	124.3	45 6	—
Sun.16	30.291	72.6	64.1	W.	59.9	84.6	56.8	127.1	54.1	—
Mo. 17	30.192	74 6	63.9	S.W.	62.7	85.9	58.8	1:3.2	55.0	—
Tu. 18	29.988	76.3	65.2	S.	62.9	84.0	58.2	121.0	54.7	—
Means	30.061	68.4	61.5		58.7	79.3	53.4	120.2	50.5	—

REMARKS.

12th.—A very fine day, no rain, neither hot, cold, nor windy, though a little cloudy.

13th.—A delightful day, stormy-looking between 4 and 5 P.M., but a fine evening.

14th.—Fine in early morning, then thick and dark from about 7.30 to 9.30 A.M., it then cleared, and was beautifully bright throughout the rest of the day.

15th.—A most brilliant day and moonlit night; warm, but with a pleasant breeze.

16th.—Very fine, bright, and warm from early morn to midnight.

17th.—Fine day, though heavy and storm-like between 4 and 6 P.M., distant thunder at 4.46 and 4.55 P.M., lunar halo at 9.50 P.M.

18th.—Very bright till 4.30, when it clouded and looked stormy; distant thunderstorm in S.W. from 5 to 6 P.M., then more wind and a lovely evening and night.

A week of fine English summer weather, not only raising the air temperature from about 58° to 70°, but penetrating the soil 1 foot deep to such an extent as to raise its temperature from 55° to 63°. No rain fell during the week.—G. J. Symons.

COVENT GARDEN MARKET.—June 19.

A much better supply this week, and the fruit trade much improved, good descriptions quite maintaining their price. Continental goods in much request. The hot weather, however, somewhat impairs the fruit, from its being packed-up so long. Large supplies of new Potatoes are to hand, from 10s. to 18s. per cwt.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples..... ½ sieve	0 0 to	0 0	Mulberries ..... ½lb.	0 0 to	0 0
Apricots..... doz.	0 0	3 0	Nectarines..... doz.	0 0	2 0
Cherries..... per box	2 0	4 0	Oranges..... ₱100	4 0	10 0
Chestnuts..... bushel	10 0	20 0	Peaches ..... doz.	10 0	24 0
Currants..... ½ sieve	0 0	0 0	Pears, kitchen..... doz.	0 0	0 0
Black..... do.	0 0	0 0	dessert..... doz.	0 0	0 0
Figs..... doz.	6 0	12 0	Pine Apples..... lb.	5 0	8 0
Filberts..... lb.	0 0	0 0	Plums ..... ½ sieve	0 0	0 0
Cobs.....	0 0	0 0	Quinces..... doz.	0 0	0 0
Gooseberries ..... quart	0 0	0 9	Raspberries ..... lb.	0 0	0 0
Grapes, hothouse..... lb.	3 0	7 0	Strawberries..... ½lb.	1 0	5 0
Lemons..... ₱100	7 0	10 0	Walnuts..... bushel	10 0	25 0
Melons..... each	5 0	10 0	ditto..... ₱100	1 0	2 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes..... doz.	4 0 to	6 0	Mushrooms..... pottle	2 0 to	3 0
Asparagus..... ₱100,	4 0	8 0	Mustard & Cress..punnet	0 2	0 0
Beans, Kidney..... per 100	1 0	2 0	Onions..... bunch	0 4	0 9
Broad..... bushel	0 0	0 0	pickling..... quart	0 6	0 6
Beet, Red..... doz.	1 0	3 0	Parsley per doz. bunches	3 0	4 0
Broccoli..... bundle	0 9	1 6	Parsnips..... doz.	0 9	1 0
Cabbage..... doz.	1 0	1 6	Peas..... quart	1 0	2 0
Capsicums..... ₱100	0 0	0 0	Potatoes..... bushel	4 0	5 6
Carrots..... bunch	0 6	0 0	Kidney..... do.	4 0	8 0
Cauliflower..... doz.	2 0	4 0	New ..... ½lb.	0 2	0 6
Celery..... bundle	1 6	2 0	Radishes.. doz. bunches	0 6	1 0
Coleworts.. doz. bunches	2 0	3 0	Rhubarb..... bundle	0 2	0 6
Cucumbers..... each	0 6	1 0	Salsafy ..... ½bundle	0 9	1 0
pickling..... doz.	0 0	0 0	Savoys..... doz.	0 0	0 0
Endive..... doz.	2 0	0 0	Scorzonera .... ½bundle	0 9	1 0
Fennel..... bunch	0 2	0 0	Sea-kale..... basket	0 0	0 0
Garlic..... lb.	0 3	0 0	Shallots ..... lb.	0 4	0 0
Herbs..... bunch	0 3	0 0	Spinach..... bushel	3 0	4 0
Horseradish..... bundle	5 0	7 0	Tomatoes..... doz.	2 0	4 0
Leeks ..... bunch	0 0	0 2	Turnips..... bunch	0 3	0 9
Lettuce..... doz.	0 9	1 0	Vegetable Marrows.. doz.	0 0	0 0

WEEKLY CALENDAR.

Day of Month	Day of Week	JUNE 27—JULY 3, 1872.	Average Temperature near London. Day.	Night	Mean.	Rain in 43 years Days.	Sun Rises. m. h.	Sun Sets. m. h.	Moon Rises m. h.	Moon Sets. m. h.	Moon's Age. Days.	Clock before Sun. m. s	Day of Year.
27	Th	Royal Horticultural Society's Birmingham	72.8	48.2	60.5	15	47 af 3	18 af 8	3 af 0	23 a 11	(	2 47	179
28	F	Coronation Day. [Show.	73 7	49.1	61.4	16	48 3	18 8	20 0	after.	22	2 59	180
29	S	Royal Horticultural Society's Birmingham	73.2	48.5	60.8	12	49 3	17 8	35 0	54 1	23	3 11	181
30	Sun	5 Sunday after Trinity. [Show closes.	73.1	48.3	60.7	15	49 3	17 8	51 0	8 3	24	3 23	182
1	M	Meeting of Entomological Society, 7 P.M.	74 8	50.8	62.8	20	50 3	17 8	9 1	20 4	25	3 35	183
2	Tu		73.4	51.2	62.3	17	50 3	17 8	30 1	32 5	26	3 46	184
3	W	Royal Horticultural Society, Rose Show, [Fruit, Floral, and General Meeting.	74.0	50.2	62.1	19	51 3	16 8	56 1	40 6	27	3 57	185

From observations taken near London during forty-three years, the average day temperature of the week is 73.6°; and its night temperature 49.2°. The greatest heat was 93°, on the 27th, 1826; and the lowest cold 34°, on the 28th and 30th, 1863. The greatest fall of rain was 1.18 inch.

THE BEST GARDENERS' UNIONS.

WITHIN the past three weeks I, and no doubt all the gardeners whose names appear in the "Year-Book" or "Horticultural Directory," have been favoured with two circulars, both, I think, relating to subjects well worthy of the serious consideration of the horticultural community, especially that portion known as gardeners. Of those circulars I have something to say, and knowing that the Editors of this Journal, true to their motto, "For Gardening and Gardeners," have at heart the welfare of all those who labour in the horticultural field, ever ready to render assistance towards their intellectual, moral, and physical improvement, and sympathising with the unfortunate and afflicted, I have the greatest confidence in asking at their hands space for the conveyance of my sentiments on the subjects treated of in the circulars.

The first of the circulars (I take them in order as received) is headed, "Union of Gardeners," which is avowedly to secure "a strike" to raise gardeners' wages. It emanates from a gardener, one who characterises the work he has undertaken as "just and necessary." As with every other union, the first call that is made is for the sinews of war—*i. e.*, "numbers and funds." The second circular proceeds from the office of this Journal, and is a call for help on behalf of the gardener or his widow—the poor and infirm old who "in the evening of life have not the means of aiding themselves." It is a solicitation of aid for the Gardeners' Royal Benevolent Institution.

Now, I have come to the conclusion (and no doubt all who have read and thought over the subjects named in the circulars, have also passed judgment) on the subjects named. I, and they, have seen in them merit or defect, subject worthy of our identification with the movement, or, on the other hand, refraining from it. Whatever conclusion you may have arrived at I trust you will "go in" for that which upon calm and serious consideration you find to your mind most "just and necessary:" that you will decide for that which has most merit, and give to that which is most to your credit, and calculated, if need be, to confer the most benefit. I give my views on these subjects for the consideration of those who have not come to any conclusion or are lukewarm in the matter.

Of the "Union of Gardeners" I have long been of opinion that we need a union of gardeners, but a very different one from that aimed at in the circular to which reference is here made. What we require is a Gardener's Improvement, Benefit, and Annuity Society—one in which we can rely on the co-operation and see established with the free consent and kindly aid of employers. It is about as barren a thought as can well be conceived to think that in forming a union, ostensibly to raise gardeners' wages by means of a strike, gardeners will be able to bring employers to accept their terms; for it should be borne in mind that gardening, as regards its best patrons, is more a luxury than a necessity. It is not unlikely that in case of a strike employers would refrain from gardening altogether, or that part which necessitates their employing professed gardeners, rather than be imposed upon by those who would dictate and have them accept terms that may be framed with a view to the advancement of their own interest without any just regard to the claims of others. Instead of a union of gardeners being "just and necessary," or likely to result in the gardener receiving a higher rate of wages, or in anywise improving his social state. I am convinced that it would only result in evil. It would cause a number of steady and well-conducted men to be thrown out of employment, and whilst they are being kept in idleness by the contributions of those at whose instigation the strike is made, the place would be filled by some one on the establishment in whom the proprietor sees energy and perseverance sufficient to carry out his instructions, and at a wage the gardener who has left would have scorned in his lowest extreme of adversity. In this way many situations would be lost, if not for ever, at least for the lifetime of the present proprietor, and there is nothing for the gardener who has left but to wait until those he has allied himself with can find him the place they have led him to dream of—a place where there is a prospect of securing the "right of position he ought to occupy with regard to the fruit of his industry." What that right may be I must confess to be unable to comprehend. It may be higher wages, lessened hours of labour, or both, or something to be found only in a union dictionary—which, by-the-by, contains but little, except that by striking or throwing yourself out of employment, living on "half a cake," and that given you by another or others, allowing your wife and family through your idleness to suffer privation or get you into debt, you hope to wring from your employer more wages and less hours of labour; the former, perhaps, enabling you after a long time to clear off the debt you have contracted through the strike, and the lessened hours of labour too frequently preventing your ever doing so through the greater opportunity you have of indulging in the social glass and frequenting places of recreation, which take all, and more, than the increased pay, so that the old score run up through the strike is forgotten, and the state of that man is worse than it was before the strike—all he wants now is another strike.

There are also in a union dictionary weekly, fortnightly, or some sort of periodical contributions that go for keeping men on strike for higher wages, less hours, &c., whilst, though nothing is said of the part paid to agitators or delegates, who swallow up a goodly part of the contributions. Strange that men should contribute to keep others in idleness—agitating for higher pay, and paying before the strike as much as they can hope to receive for a considerable time after they have secured their object, if ever they do secure that; for no sooner is one strike over than they are asked to contribute to the funds of the union either in anticipation of another strike or one in some other locality, so that with increased wages they are always under contribution to that which is to secure them in time a return with interest, which is one of those things

ever to be seen by the eye of faith, but never attained in the lifetime of the contributor.

That unions with their attendant strikes have been a means of raising wages and lessening the hours of labour, those who look at strikes with the greatest possible disfavour must admit. It is not here attempted to do anyone an injustice, but if the scale of wages has been higher, and the hours of labour less, it remains a fact all the same that pauperism has increased to an alarming extent, and drunkenness has risen proportionately to the increase of wages.

Unions have driven from our midst the skilful, enterprising, and persevering, caused them to seek a home in other lands, leaving behind a class that in health and prosperity contribute to those institutions which, instead of keeping them from the jail and poorhouse, bring them to a premature old age or death, they or their families falling into the extreme of poverty. Strikes, then, not only cause much present but also great after-misery; they stay enterprise, stop the circulation of money, increase the cost of production, and raise the price of the raw as well as the manufactured material—in fact, advance everything but morals and virtue.

"But if unions are so great an evil, why say we need one for gardeners?" I say we need—and all men dependant on labour need—a union; not one that has for its object the raising of wages or reducing the hours of labour by a strike—not one that requires payments in advance equal to what is gained afterwards with loss of interest—not one that will not aid us in adversity, succour us in affliction, or comfort us in old age; but one that will, by improving our mental and moral condition, raise us in the eyes of our fellow men, render us more worthy of respect and consideration from our employers, and fit us for a higher position in art, science, industry, and society. To effect this we must form ourselves into an improvement society—a gardeners' institute, on the same broad principles as those of mechanics' institutes, such as already exist at Maidstone, Leeds, York, and, no doubt, other places—institutions of mutual help and improved mind-culture. In connection with such an institution there should be a Benefit society, not only to meet cases of sickness, but also to afford assistance to the unfortunate—those who through no fault of their own are thrown out of employment, and through the mere whim or tyrannical treatment of a late employer has kept back from him the needful requirements of future prosperity—*i. e.*, the testimonials to which he is justly entitled. Many, and, alas! too many, employers think not and care not how a gardener is to live after he leaves or is dismissed from service. Happily worth will always find its proper position, but there is no calculating the inconvenience and loss many really honest and trustworthy servants are put to by the caprices of their employers. It is this mere whim or fancy, and want of consideration on the part of employers, that makes it impossible for anyone with a sense of what is due to his respectability and merits as a gardener to serve them with other than of eye-service, and a longing to be freed. In fact, gardeners are often more valued for their submissive spirit than for any merits they possess as gardeners. If they can set their own experience aside, practise according to the idea of the employers, bear all their hard rebukes for what are at best only fancied causes of offence, it may be well; but if they should rebel, or rather repel attacks of their employers on their truthfulness, honesty, and ability, they are driven away in a manner anything but justifiable, and are treated to a considerable amount of loss and inconvenience. I make a point that our numbers out of employment are increased to an alarming extent through the want of consideration shown to gardeners. I contend there are employers whom no gardener can serve faithfully, and I also hold it is unworthy anyone to strive to do so by pursuing a course his conscience says is neither just nor honourable. It would be well if we had a society to save gardeners from becoming preys to such employers as those. It is only reasonable that respectable and worthy men should, in their battle for a livelihood for themselves and families, be protected from becoming a prey to these destroyers of a gardener's prospects, and direct causes of their drinking deeply of the cup of adversity.

I could give even stronger reasons why we should form ourselves into an improvement society, one of mutual support, and especially that of self-help, which is the greatest necessity of all. I shall, however, content myself with stating three causes, or reasons, why we should resolve ourselves into a society. The first of these is improvement. It will not be denied that we, as a body, are not behind other branches of industry in intelligence, and are possessed of as good a knowledge of our business as others do of theirs; but then, as ours is a progressive business—one in which it is imperative, if we mean to make our mark, to lay hold of those agencies of instruction which will enable us to keep pace with the age—the better informed our minds, the greater will be the skill and fruit of the hands.

Secondly, to afford succour, by interesting ourselves in each other's welfare mentally and physically, to those who, from no fault of their own, are suffering from non-employment or undergoing any of those trials encountered by man in the struggle of life. It should be our duty to keep one of our body from taking a known bad service; and whilst we should see that none belong to the association but those who have undergone a proper course of instruction and have proved their respectability so as to warrant our affording them assistance, they should not allow of a known dissipated and unworthy character taking a good and responsible position without making it known that the person does not belong to the society. In this way no discredit could accrue to the society.

Thirdly, to afford relief in sickness and infirm old age. From the peculiarity of their calling gardeners are liable to a considerable amount of sickness from extremes of heat and cold, and of the sudden transitions from one to the other, and these bring on very often a premature old age, and frequently death at an early period of life, leaving, it may be, a wife and children behind, with no means of maintenance. Now, I hold that every man whilst in health is bound to so much self-denial of those indulgences and extravagances which tend to no good either to himself or others, as to provide for those misfortunes and infirmities that beset human nature, by laying aside each and every time he receives pay, a portion of his earnings. Anyone not doing this in prosperity has really no just claim on our sympathy and support in adversity, only we must not allow anyone to fall without striving to lessen its effects, and keep, if possible, that one from a like calamity. Were everyone to lay by one half-of that which is spent on articles of dress, or the gratification of the eye and palate, there would be with the interest sufficient to meet every demand of man arising from want of employment, misfortune, infirmity, old age, and death. But as everyone has not this forethought it becomes a matter of consideration whether it ought not to be made compulsory on everyone to provide for those calamities which befall humanity, by a system of contributions which, whilst it entails no present hardship, would at some time prove of benefit. Were this done the poor-rate would cease to be levied, our temples of Bacchus would fall into decay, and the vice and misery they foster be done away with.

It will be apparent to those giving the subject of unions more than a passing notice, that where they exist for no other object than for raising wages, or lessening hours of labour, or other grievances, by a strike or the stoppage of labour, they only place a higher price on the articles resulting from their industry, other things advancing in proportion, so that with the increased pay they are no better off after than before the strike. What a different result would be attained were the members of unions to apply the money to co-operative purposes, allow it to accumulate until sufficient capital had been raised to enable them to set themselves up in business on their own account. That the money expended on strikes would be sufficient to start more than one co-operative company annually in nearly every branch of industry, everyone but those engaged in this foolish work of strikes can or may see, and so would they if they were only to think.

"But how are we without strikes to secure our rights? You surely would not have us submit ourselves to every injustice, and bear with every grievance?" Not at all. It would be cowardice and worse. But could we not have boards of arbitration to settle all disputes that may arise, and composed equally of employers and employed, all agreeing to abide by the decision arrived at? This would prevent strikes; or, if no solution could be come to satisfactory to the employed, they might with the funds at command set themselves up in business on their own account, and this would so far reduce the number of hands that employers would be more ready to accord a settlement. In this way the funds of the workmen would, instead of being thrown away on a strike, go to increase the manufacture of the article or material, whilst the same result would be secured by those who would be taken on after the settlement of the dispute.

"But do you intend your observations to apply to gardeners?" Decidedly so. Why not we have our co-operative society? Have we not within us the spirit of enterprise, energy, skill,

and industry, to carry on the business of a market gardener? Could we not raise funds at a single stroke to start us on an extensive fruit and vegetable farm, and, if need be, add to ourselves that of nursery and seedsmen? Brother of the spade, let us put forth our strength; let us show to the world that we are above the secret and underhand dealing which precedes and results in a strike; let us find for our brethren out of employment profitable employment, give them an interest in the cause, which they would have by placing at the disposal of the concern the moneys they are bound to expend in maintaining themselves and families between leaving one place and securing another. It would be a gain to us all. We should be able to give employment to all our unemployed, and I have no doubt would return good interest on the funds invested.

Such, then, is the union I consider needful for gardeners, and not only for them, but those engaged in every other branch of industry. We need self-help, self-improvement, as well as that which is mutual, extending to others. Let everyone now commence. It is never too late to begin a good work. True, we have shown very great antipathy to every movement having for its object the bettering of our position as members of a useful art. It will be remembered by many of the readers of this Journal, that in the spring of 1863 the subject was brought prominently before them (see JOURNAL OF HORTICULTURE, vol. iv., New Series, page 189), that it ended in the propounding of a Benefit Society (vol. iv., page 305), and my views on the subject will be found at page 345 of vol. v. Since then they have undergone no change. I say now as I said then, that the whole scheme as first propounded will ultimately be carried out with the unanimous consent of all sections of the gardening community. Of unions framed only with a view to the advancement of gardeners as apart from the interest of other parts of the great and powerful gardening community, I am equally sanguine that they will fail, and I appeal to them as an "intelligent and industrious class," to refrain from a movement that is calculated to end only in disaster.

Of the second circular little need be said. Everything is set forth in the circular and paper accompanying "The Gardeners' Royal Benevolent Institution, instituted in 1838. For providing relief by means of pension for life for aged gardeners, their widows, and others connected with horticultural pursuits." There is no disputing the value of a society such as this; it is one eminently suited to the gardener. The time is not of a very late date when gardeners could shield themselves, or have an excuse, for not subscribing to its funds from their having no more prospect of being placed on its funds than anyone who had not contributed to them. Happily there is now no necessity for seeking election by a roundabout and expensive course of canvassing members. All that is now necessary is to contribute for fifteen consecutive years, and then preference is given to such contributors over non-subscribers, or subscribers for a less number of years. Let us hope none of us will need such aid; but as the best of us know not what is to befall us through life, ought we not to lay up in store against the evil, which is the better for us if it do not come, better again if it come and find us prepared? Shall we, then, give this excellent charity nothing but the cold shoulder? I say not. Those who are not subscribers ought at once to send in their names, and we shall have the pleasure of feeling that we are doing good whilst we live, and is there not more pleasure in giving than receiving?

In hope that some measures may be taken to relieve the suffering of gardeners in adversity and affliction, I commend these observations to all classes of the gardening community, in the firm belief that they are just and commendable.—G. ABBEY.

ROYAL HORTICULTURAL SOCIETY'S EXHIBITION AT BIRMINGHAM.

JUNE 25 TO 29.

THERE are some places in the world that we do not readily associate with flower shows, and perhaps if anyone were to be asked off-hand where the best, most extensive, and varied exhibition connected with horticulture had been held of late years he would hardly have said, unless he were better acquainted with the people, Birmingham; yet when we recollect that the poultry and dog shows of Birmingham take precedence of all others, and that a cup won there is a higher honour than one taken anywhere else, we might suppose, if once the inhabitants put their shoulders to the wheel, they would initiate an exhibition of equal importance in its way. Time was when Birmingham was associated in the minds of most with that only which was trumpery. "Brummagem" became a synonym for a sham, and its traders were looked upon as simply smart and unscrupulous. It was said, we know not how truly, that the same ship which carried out some devoted missionary, who left home and kindred to fight the battle of the Cross in heathen lands, carried out also casks of idols chiefly manufactured at Birmingham; that Birmingham traders supplied the guns with which New Zealand chiefs carried on their wars with the English colonists; and that even now many a claim in the Cape diamond fields has been sold above its value by the 'cute owner scattering about it a few Birmingham-made diamonds. Now, however, Birmingham from its numerous trades and occupations, more especially in all connected with metals, has become the worship of the world; its merchants are princes; and nowhere can we meet with more remarkable examples of what men call "self-made men," nor any place where art has received more liberal encouragement. Witness Mr. Gillott, the steel pen manufacturer, who in his early days made the pens in a garret while his wife polished them, and whose collection of modern paintings of the English school sold for 188,000 guineas; or Josiah Mason, who commenced life as a cake-seller in the streets of Kidderminster, but who at Birmingham made his large fortune, which he has so nobly expended in founding and endowing, at a cost of £250,000, an orphanage for children and almshouses for aged women. But there! I am not going to write a history of Birmingham or tell of all its deeds; anyone who wants to know about it may consult Mr. Tanner's "Industrial History of Birmingham and the Midland Hardware District," or some very readable articles in the "Leisure Hour" of this year.

There is one name, however, connected with Birmingham and with horticulture we cannot pass by—one noble-minded woman whose name, perhaps, is likely to be forgotten in that of her husband, but without whose aid his works would probably never have been produced—Mrs. J. C. Loudon, who was a native of the neighbourhood, and who, when all her husband's earnings were absorbed in his great work, the "Arboretum and Fruticetum," for many years supported her family by her pen; and who, when he was compiling his "Encyclopædia of Cottage, Farm, and Villa Architecture," says herself, "Mr. Loudon and I used to sit up the greater part of every night, never having more than four hours' sleep, and drinking strong coffee to keep ourselves awake."

That the people of Birmingham can appreciate horticulture and gardening is proved by the fact of their purchasing Aston Hall and grounds, and which in 1858 were opened by our gracious Queen, by one of whose sons the present Exhibition is also opened. The enthusiasm on that occasion was so great that the whole distance from the Town Hall to the park, nearly three miles, was lined with galleries filled with spectators; and amidst the touching scenes of that visit nothing was more remarkable than the assemblage of 17,000 children, who, as the Queen passed, each took up their refrain, and many a one heard the sweet children's voices with a full heart. No such gathering took place on Tuesday last, but crowds of people who gladly welcomed the young son of Her Majesty testified, by the heartiness of their reception, that the old loyal feeling of England still remained.

Tuesday, the day of Prince Arthur's entrance into the town, the whole place was *en fête*. Bunting to an enormous extent was displayed in every direction, but more especially in the route traversed by the Prince. Triumphal arches were erected at various intervals, and immense masses of people were congregated in the streets; the shops were closed early, and at night the whole town was brilliantly illuminated, and no one would have imagined that they were in the town of which Thomas Attwood and John Bright are the political idols.

As I am writing for those who are not present at the Show, and not for those who are, I may as well, before entering on my own special department, give a general outline of the ground. A reference to the plan published in last week's Journal will show that the shape of the ground is triangular, the base of the triangle being about half of the sides. At this base the principal tent, containing the stove and greenhouse, fine-foliaged plants, Ferns, Palms, Geraniums, &c., is placed. This tent is laid out in a style similar to that at the International Exhibition and at Nottingham; but I may say that the arrangement is the best I have seen, the banks or terraces are wider and more shallow than I have seen them before, and

the grass is in perfect condition. The sides of this tent are boarded, and the whole is singularly light and elegant. Parallel with it is the tent for fruit and cut flowers, and the long tent is devoted to miscellaneous objects. There are, moreover, two tents of hardy British Ferns, another for table decorations lighted with gas, whole tents occupied by some firms, as Messrs. Carter & Co., of London, and Mr. Vertegans, of Edgbaston. In the centre of the ground are greenhouses, wirework, benches, and all sorts of horticultural contrivances; while one side of the triangle is bounded by what may be called a veritable horticultural fair. It is composed of sheds open in front, and here may be seen "whatever you please, my little dears;" so that by judiciously spending a few pounds you might come out the most veritable cockney in gardening that could be imagined. Messrs. Carter & Co. have a magnificent tent, and so have Sutton & Sons, of Reading. The arrangements that have been made are admirable; and whether I consider the prize list and its liberal premiums for everything, the indefatigable exertions of the Local Committee, aided by their invaluable Secretary Mr. Badger, the provision made for the comfort and convenience of exhibitors, the open-handed hospitality by which houses have been thrown open to those whose only claim has been the brotherhood of horticulture, I do not envy the place that next invites the Royal Horticultural Society to visit it.

The *coup d'œil* on entering the large tent is fine in the extreme, the one defect being, perhaps, that the ground at the entrance is not sufficiently high to enable one to gain a general view over the whole tent; but the ample space given for promenading and viewing the plants, the width and shallowness of the banks on which the plants are placed, the perfect condition of the grass, the exceeding lightness of the tent itself with its green framework—all combine to give a very charming view, and to make a scene that might well be characterised as a fairy one or a veritable tropical gardeu.

Annexed is a ground plan of the principal tent, with cross sections showing the disposition of the plants. A B Is the longitudinal section; the cross sections being represented by R S, P Q, N O, L M, J K, G H, E F, and C D.

After His Royal Highuess Prince Arthur had passed through the Show, accompanied by several leading horticulturists and officers of the Society, including General Scott, Lord Henry G. Lennox, Mr. Marshall, Mr. Richards, and Mr. Quilter, the following address was presented to him:—

To H.R.H. Prince Arthur William Patrick Albert, K.G., K.P.

May it please your Royal Highness—We, the President, Vice-President, and the other members of the Birmingham Local Committee appointed to promote the Provincial Exhibition of the Royal Horticultural Society for the present year, join most heartily in the welcome given to your Royal Highness on the occasion of this your first visit to this neighbourhood.

We gratefully acknowledge the honour and obligation conferred upon us by your Royal Highness consenting to open this Exhibition on behalf of the President of the Royal Horticultural Society, and we trust that the arrangements which have been made for the several divisions of the Exhibition will receive your approval.

The decision of the Royal Horticultural Society to hold yearly in the provinces an exhibition on a large scale appears to us to be especially calculated to extend the influence of the Society, and to promote the objects which it has in view, by leading to the study and development of horticulture generally throughout the kingdom, and by eliciting a healthy and useful spirit of emulation between the districts visited by the Society from time to time. That this purpose is already largely fulfilled is proved by the magnificent display of plants, flowers, and fruit now collected at this Exhibition, which may justly claim to be the largest and most varied, as we trust it may also prove the most successful, yet held under the auspices of the Society.

As a collateral advantage of the provincial exhibitions of the Society, we beg leave to call the attention of your Royal Highness to the collections of Implements, Buildings, and other appliances connected with horticultural pursuits, to which particular attention has been given on this occasion, both from the important bearing of this department upon the general work of the Society, and also from its interest as a branch of local and national industry.

Though not immediately connected with the proceedings of to-day, we may venture to refer to the valuable assistance given by your honoured Father in the establishment in Birmingham of an exhibition for the promotion of the kindred pursuit of agriculture, and which, stimulated by the patronage and support of the late Prince Consort, has long since taken high rank in the annual agricultural exhibitions of the country.

We may be permitted to observe that in the part your Royal Highness takes in the proceedings of this day we recognise a continuance and a renewal of the obligations already conferred upon this district by members of the Royal Family; and, in again thanking you for your attendance, we record with satisfaction the fact that your Royal Highness has invariably manifested a willing disposition to give your personal assistance in any public undertaking designed to promote the welfare and advantage of the community.

(Signed) BRADFORD, *President*.
JOHN SADLER, Mayor of Birmingham, *Vice-President*.

To this His Royal Highness replied:—"Gentlemen, it affords me great pleasure to be enabled to open this Exhibition, which you have such good reason to believe is one of the most successful that the Society has yet held in the provinces. I have no donbt that for this result we are indebted to the energetic and well-directed labours of the Local Committee—a committee admirably constituted, whose members, I understand, have devoted much time and attention to working out the many wearisome details that are necessary to ensure so satisfactory a result. I am likewise glad to hear that good use is being made of the Botanical Gardens at Edgbaston. An inspection of the buildings, implements, and other appliances in connection with horticulture will afford me great interest, partly because they are matters in which my father took the deepest possible interest, and especially as they form a branch of the local industry of this neighbourhood. Pray accept my best thanks for the kindly expressions contained in your address, and let me assure you I shall ever be ready to further the wishes of a Society whose object is to encourage a pursuit which affords such innocent enjoyment, and which engenders habits of taste and refinement." (Cheers.) His Royal Highness added: "Ladies and Gentlemen, I now declare this Show to be open." (Renewed cheers.)

And now leaving to my excellent *confrères* to detail their ideas of the other portions of the Show, I proceed to notice those classes in which florists' flowers are exhibited, the Committee having supplemented the schedule of the Royal Horticultural Society with a large number of classes, so as to embrace every description of flower which is in an exhibitable state at this seasen of the year. Thus, in Pelargoniums we have no less than twenty-four classes, and amongst them some very judicious prizes, which will enable growers of these plants to test the value of those already sent out, or of any that are likely to be offered. This is an immense advantage, and the Birmingham Committee are to be congratulated on having set so good an example.

Pelargoniums.—*Show* Pelargoniums are, on the whole, very indifferent, and to those accustomed to the metropolitan shows are poor indeed, the best being those contributed by Mr. C. J. Perry, The Cedars, Castle Bromwich. In the class for *Zonal* Perry, The Cedars, Castle Bromwich. In the class for *Zonal* Pelargoniums, Mr. Perry is first with some graud plants of Pelargoniums, Mr. Perry is first with some graud Grisau, Glorious, Vesuvius, Clipper, Queen of Beauties, Amelina Grisau, Glorious, Mrs. W. Paul. Another good collection is exhibited by Mr. William Cox, of Madresfield Court, comprising Avocat Gambetta, Edith Dombrain, Milo, Marie Stuart, Madame Hoste, and Vesuvius. Six new Nosegay Pelargoniums, Messrs. Bell and Thorpe are first with David Garrick, Master Christine, and others. For six new Zonal Pelargoniums Mr. C. Turner is second, with Miss Allum, Colonel Vyse, Andrew Marvel, Mr. Purviss, &c. For four new Show Pelargoniums of 1871 and 1872 Mr. Turner is the only exhibitor with Pompey, Brignol, Sultan, aud Achievement. For the best single one not yet sent out Mr. Turner is first, second, and third with Syren, Mogul, and Conquest. For the best new Nosegay Mr. Turner is first with Miss Quilter, a beautiful pink. For the best new Bronze Pelargonium not sent out Messrs. Downie, Laird, & Co. are first, second, and third with Prince Arthur, Climax, and Mr. E. A. Pollard. For the best new Silver Tricolor the same firm are first with Mr. Laing, Mr. Turner second with Marchioness of Headfort, and Messrs. Bell & Thorpe third.

Tricolor Pelargoniums.—Here the competition was very severe. Mr. C. Turner is first with Mrs. Headley, Mrs. Rousby, Lady Cullum, Lady B. Bridges, Princess of Wales, and Achievement; the plants small, but high in colour. Bell & Thorpe second with large plants of Sophia Cusack, Countess Craven, Macbeth, Italia Unita, Sunset, and Lady Cullum. Mr. Pestridge Uxbridge, is third with Lady Cullum, Italia Unita, Mrs. Headley, Achievement, and Sophia Cusack. Messrs. F. & A. Smith have a very nice high-coloured lot, amongst which I noticed particularly Masterpiece, very distinct, fine: this collection was awarded an equal second.

For six variegated Geraniums (open), the first prize is awarded to Mr. F. Ford, gardener to B. Davenport, Esq., for Gem of Tricolors, Italia Unita, Mrs. Pollock, Lady Godiva, Jock O' Hazeldean, and Queen Victoria.

Bicolor Geraniums.—For the best three new varieties sent out in 1871 and 1872 Messrs. Daw & Co. are first with Marshal McMahon, H. G. Quilter, and W. E. Gumbleton third.

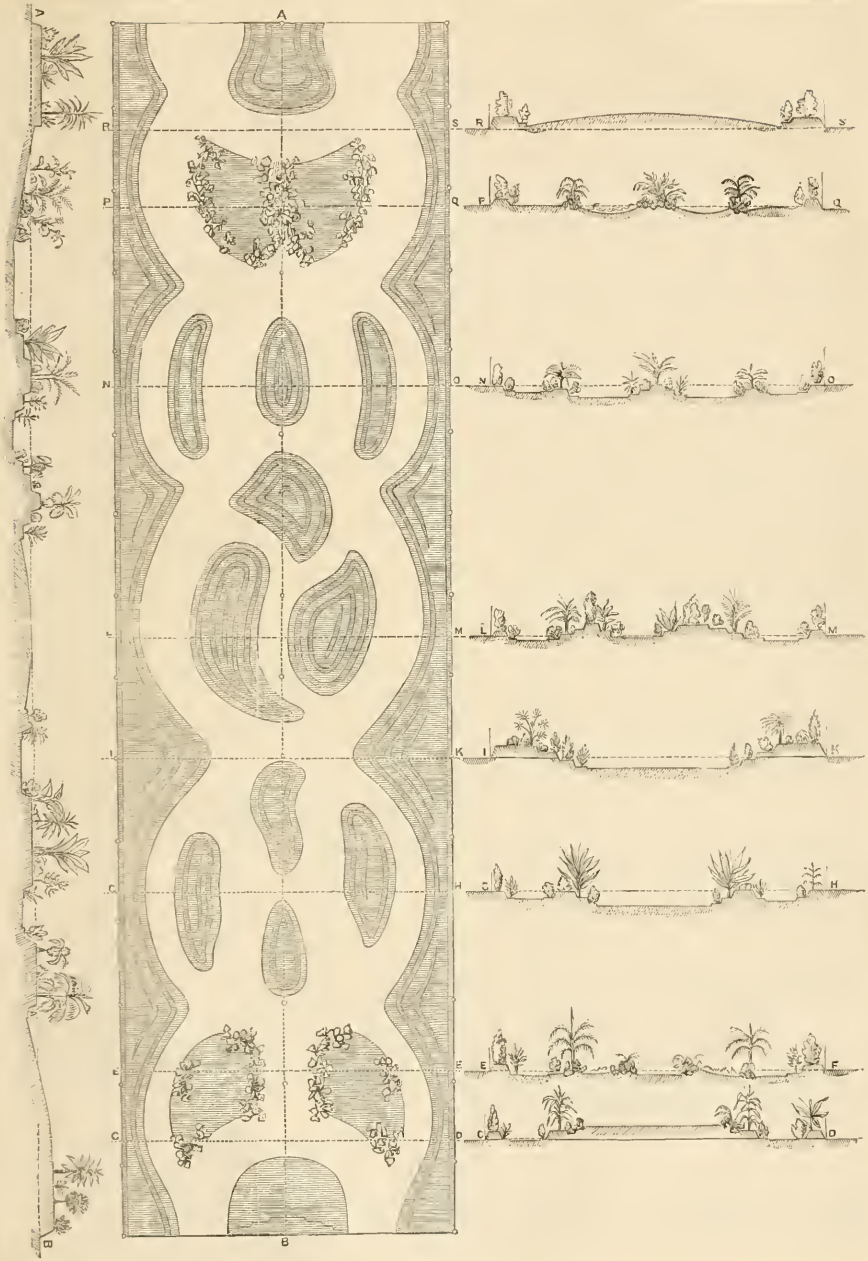
In Double-flowered Pelargoniums (amateurs), Mr. Marsh, gardener to J. O. Bacchus, Esq., is first with Capitaine L'Hermite, Marie Lemoine, and Victor Lemoine.

In single Tricolors not sent out, Mr. C. Kimberley is first with Empress; Messrs. Downie, Laird, & Laing second with John B. Downie; and Mr. Turner third with Miss Morris.

Pinks.—In the prizes offered by Mr. C. Turner, Mr. Pizzey, Fulmer, Slough, is first with Rev. George Jeans, Mr. Waite, Marion, Bertram, Serpent, Eustace, Device, Prince Frederick William, Attraction, and Helen. Mr. Beardsley is second, and Mr. E. Kingston third.

Fuchsias.—The first prize for a specimen is awarded to Mr. G. Harborne for Rose of Castille; second to Mr. Westall; third to Mr. Foulds for Dan Lambert. For four Fuchsias (amateurs), the first prize goes also to Mr. G. Harborne for Marguerite, Puritan, Rose of Castille, Vainqueur de Puebla; the second prize for larger plants to Mr. Foulds.

Roses.—Notwithstanding the very unfavourable nature of the season, these were exhibited in very good condition, some fine



GROUND PLAN OF THE GREAT TENT AT BIRMINGHAM.

stands being shown by Cant, Turner, and Paul & Son. In the class for forty-eight, Mr. Cant is first with some splendid flowers, amongst which are Elie Morel, Antoine Ducher, Mons. Noman, Baronne de Rothschild, Abel Grand, Louis Van Houtté, Beauty of Waltham, John Hopper, Camille de Rohan, Prince de Porcia, and Duke of Edinburgh. The second prize is awarded to Messrs. Paul & Son, Cheshunt, for some fine flowers, conspicuous amongst which are Mons. Noman, Elie Morel, Felix Genero, and Dupuy Jamain. Mr. Charles Turner is a good third. In the class for twenty-four Roses (amateurs), Mr. Evans, gardener to Mr. Newdegate, is first, with some fine blooms, amongst which are Dr. Andry, Marie Baumann, Général Castellane, Thérèse Levet, and Jean Goujon; Mr. Laxton second. In the class for twenty-four cut Roses, three trusses of each (nurserymen), Mr. Cant, of Colchester, is first again with some very fine blooms, amongst which, conspicuous above all, is Mons. Noman. It seems as if this year is especially favourable to it. Mr. Turner, of Slough, is second; Messrs. Paul and Son third; and Mr. G. Davison fourth. In the class for twelve cut Roses (amateurs), Mr. Evans is again first with flowers a little rough; Mr. J. Lakin, Chipping Norton, second with flowers amongst which is Maréchal Niel, Louise de Savoie, Beauty of Waltham, and La France; and the Rev. C. Evans, Solihill Rectory, third with some very nice flowers. For six Roses, Mr. J. E. Cavell is first with La France, Prince de Porcia, Marguerite de St. Amand, Madame Victor Verdier, and Victor Verdier.

Bouquets.—As a rule, we think that a great mistake is made in making-up hand bouquets. A great deal too much stuff is used, and consequently they are heavy. So it is to-day; and were it not that they are relieved by a considerable quantity of Maidenhair, they would have been still more so. Messrs. Pope & Sons, King's Norton, Birmingham, are first with a very handsome bouquet, but somewhat large. The second prize is obtained by Messrs. Felton & Sons; the third by Mr. Hewitt, of Solihill; and the fourth by Mr. Yates, Sale, Cheshire. Thus the principal prizes are awarded to Birmingham and its neighbourhood. For the gentlemen's button-hole bouquet, the first prize is given to Messrs. Perkins & Son, Coventry, for one with a Tea Rose, Forget-me-not, one bloom of Stephanotis, and Adiantum. The second to Miss E. Turner, Liverpool; and the third to Mr. C. Turner. For a single vase of flowers, the first prize is awarded to Miss Hassard, St. Ronan's Church Road, for one of Mr. Thomson's vases with Ferns and Water Lilies at the foot; Centaurea, Adiantum, Water Lilies, Rhodanthe, and Grasses in the upper glasses. The second is awarded to Miss Hassard for a small vase of the same arrangement; and the third to Miss E. Blair, for one very similar. There is an extensive exhibition of

Table Decorations.—Taking these in their entirety we have no hesitation in saying that they are greatly in advance of those exhibited at South Kensington. There are no such violations of taste as in those exhibited at South Kensington, while many of them are exceedingly good. The first prize is awarded to Mr. Cypher, Queen's Road Nursery, Cheltenham, for an exceedingly effective arrangement. It consists of three March stands, the centre one surrounded by a border of glass, containing flowers and Maiden-hair Fern. The bottom circle of the stand is composed of Ixoras and Eucharis amazonica, the upper one of Heaths and small Roses, with a plentiful supply of grasses. The dishes of fruit are handsome. At the head and foot are a Pine Apple and Melon, surrounded with a trough containing flowers. The glass is good and appropriate. The second prize is awarded to Miss Hassard, St. Ronan's Church Road, Upper Norwood, and is arranged with her usual good taste—two Palms, surrounded by trays containing flowers, being let into the table (a barbarism, as we believe); the centrepiece being one of Mr. Thomson's stands, arranged with Grass, Ferns, and the climbing Fern. Two statuettes occupy the space below, and the fruit is placed in small baskets. The arrangement is simple, although wanting, we think, in colour. The third prize comes to Miss F. Cole, Birchfield, Birmingham. It is arranged with a March stand in the centre, from the top of which hangs Cissus discolor, two shallow dishes filled with Maidenhair, &c. The fourth prize is awarded to Mr. Muller. It consists of three March stands very prettily arranged with baskets of fruit between, a button-hole bouquet arranged in each finger napkin, and a few specimen glasses placed round. Miss E. Blair exhibits a prettily-arranged table and two March stands. This, we think, quite deserved the third prize. There are other tables very pretty, but these are decidedly the best.

Stove and Greenhouse Plants.—In Class 1, for twenty plants in pots not exceeding 12 inches in diameter, Mrs. E. Cole and Sons, Withington, Manchester, exhibit several very fine specimens, the most noticeable of which are Ixora coccinea, sixteen heads of bloom, some of them very large; a fine specimen of Azalea Duchesse Adelaide de Nassau; Ixora Colei, with large heads of white flowers; Vinca rosea, quite 2 feet in diameter and in splendid bloom; Vinca oculata, not so large, but in excellent bloom; Dipladenia crassinoda, fine; Phœnocoma prolifera Barnesii, 2½ feet in diameter, beautifully fresh and bright; Aphelexis macrantha purpurea, fine; and several well-grown Heaths. Messrs. Jackson & Son, Kingston, Surrey, send also a collection containing several excellent Heaths; Clerodendron Kæmpferi, fine; Dracophyllum gracile, very good; and a showy scarlet Kalosanth. The first prize goes to Mrs. Coles & Sons, the second to Messrs. Jackson. In the next class, for nine, Mrs. Cole & Sons have a specimen of Azalea Extranei, a splendid mass of rosy flowers, 5 feet high and nearly as much in diameter; Ixora Colei, about 4 feet in diameter, with heads of flowers some of which measure 6 inches by 5, and fully establishing its claim to be considered a first-rate exhibition plant; Allamanda grandiflora in profuse bloom; a good Clerodendron Balfourianum, but not far enough advanced to show much crimson; Allamanda cathartica; a large Erica Candolleana, and Dipladenia crassinoda in fine bloom. Messrs. Jackson have a very fine Aphelexis macrantha purpurea, Dracophyllum gracile, the charming Dipladenia amabilis in fine condition, Stephanotis floribunda, and large and fine specimen Heaths. Mr. J. E. Marsh, gardener to J. O. Bacchus, Esq., Brinstead, Leamington, has an excellent Clerodendron Balfourianum, a good Eucharis amazonica, Allamanda Schottii, very well grown and flowered, and Hoya carnosa, balloon-trained.

In Class 3, for six plants, Mr. T. M. Shuttleworth, Golden Hill, Leyland, near Preston, has very fine specimens of Phœnocoma prolifera Barnesii and Mussænda frondosa, each fully 4 feet in diameter, and the latter the finest specimen we have ever seen of this plant. Others from the same exhibitor are Anthurium Scherzerianum with a score of fully expanded spathes and buds, a good Stephanotis, and Erica Cavendishii. Mr. Marsh, and Mr. Plumbley, gardener to J. Charlesworth, Esq., The Hollow, Leicester, and Mr. Webb, gardener to J. Gulson, Esq., Stoke, Coventry, also exhibit in this class, together with Mr. Chapman, gardener to J. Spode, Esq., Hawkesyard Park, Rugeley, and Mr. Coysh, gardener to E. Wood, Esq., Newbold Revel. From the former come very fine specimens of Phænocoma prolifera, Clerodendron Balfourianum, Ixora amboynensis, and Ixora coccinea, the last two very splendid; from the latter, Allamanda Schottii with very large flowers, Eucharis amazonica 3½ feet in diameter, with a profusion of its large, white, scented flowers. Mr. Wakefield, gardener to F. Gretton, Esq., Bladen House, Burton-on-Trent, has a finely grown and bloomed plant of Allamanda Hendersoni, and the showy scarlet Clerodendron fallax with four spikes.

As a specimen stove plant, Mr. Baines exhibits a remarkably fine Dipladenia amabilis peculiarly bright in the colour of its flowers. Hoya bella, from Mr. Stacey, gardener to F. Osler, Esq., Edgbaston, is second; the plant is well grown, but to show the beauty of its flowers it ought to have been placed in a more elevated position. The best specimen greenhouse plant is Phœnocoma prolifera Barnesii, from Mr. Baines, a splendid specimen quite 4 feet across. Mr. Foster is second with a good Aphelexis.

Mixed Groups.—Mr. Baines has a magnificent collection, consisting of grand specimens of Hedaroma tulipifera; Ixora javanica, nearly 4 feet in diameter, one of the finest specimens ever seen, both in growth and freedom of bloom; I. coccinea, equally fine; Allamanda nobilis, the flowers both numerous and large; Statice profusa, fine; Dipladenia amabilis and splendens, with more flowers than we ever before remember on either plant; Anthurium Scherzerianum, with eighteen spathes and buds, and Dracophyllum gracile. Of fine-foliaged plants there are noble examples of Sarracenia flava, Rhopala corcovadense, Acanthophœnix crinita, Yucca variegata, Theophrasta imperialis, Cordyline indivisa, and Dasylirion acrotrichum, with a towering specimen of that noble Palm Verschaffeltia splendida. Mr. E. Dixon, Norwood Nursery, Beverley, is second with a noble Cycas revoluta, Seaforthia elegans, and Variegated New Zealand Flax, not in good colour. Mr. G. Cooper, Rose Hill Nursery, Derby, is third, showing, among others, a noble Phœnicophorium seychellarum, Allamanda Hendersoni in fine bloom, and an excellent Cycas revoluta. Mr. Cutbush, of Barnet, sends a group, in which we notice a large specimen of Peristrophe angustifolium variegatum, and good though not large plants, both flowering and ornamental-leaved. Messrs. Bell and Thorpe have an excellent Alocasia Lowii, Marantha Veitchii and roseo-picta, also Alocasia metallica, Cordyline Banksii, and Pritchardia Martii, together with Statice profusa and other flowering plants.

Fine-foliaged Plants.—Of these there is a grand exhibition, and we are glad to say very few plants in any of the collections to which exception can be taken. In the amateurs' class for nine, Mr. Foster, gardener to E. Greaves, Esq., Avonside, Warwick, is first with magnificent plants of Maranta Veitchii, Anthurium magnificum, Cycas revoluta, Phœnicophorium seychellarum, Alocasia metallica, two excellent Crotons, and an Encephalartos. Mr. Coysh, gardener to E. Wood, Esq., Newbold Revel, who takes the second prize, has a very large and fine Alocasia violacea, an excellent Croton variegatum, C. angusti-

folium, fine; Alocasia macrorhiza variegata, and Alocasia zebrina. Third comes Mr. W. Shuttleworth with a large Croton pictum, Cycas revoluta, Phœnicophorium seychellarum, Cordyline indivisa, and Croton angustifolium.

In the nurserymen's class, Mr. Williams, of Holloway, takes a decided lead with a very even collection of large plants in fine health. Noticeable among them are noble specimens of Cycas revoluta, Chamærops humilis, Latania borbonica, Encephalartos latifrons, and Cordyline indivisa. Mr. Bryant, Rugby, is second with Cocos coronata, Anthurium magnificum, and other good specimens. Messrs. Bell & Thorpe are third with, among others, remarkably fine specimens of Pothos porphyrophyllus and argyrea, 2 to 3 feet across, and a large pan of Gymnostachyum Pearcei. For six (amateurs), Mr. Quilter is first with an immense Cycas revoluta, Seaforthia elegans, a fine Cyathea medullaris, and a large Chamærops excelsa. Second comes Mr. Hodges, Gravelly Hill, with fine plants in perfect health of Alocasia Lowii and metallica, and a large Phœnicophorium sechellarum. Mr. R. Berry is third. Mr. Marsh also shows a good six. Mr. Brown, Elmdon, has, in a group of six, excellent plants of Maranta roseo-picta and Alocasia metallica.

Of specimen fine-foliaged plants, from Mr. J. Westall, gardener to J. Kempson, Esq., Handsworth, comes a good balloon-trained Cissus discolor; from Mr. Baines a grand plant of Sarracenia flava, 3½ feet high exclusive of the pot; from Mr. Quilter, Lower Grounds, Aston, a very fine Cordyline indivisa; Mr. W. Jones, Church Road, Edgbaston, Maranta zebrina; Mr. Berry, gardener to J. Thorp, Esq., Leicester, large Alocasia violacea.

Palms.—In his six Mr. Williams shows a magnificent Sabal Blackburniana, a fine Latania borbonica, a handsome Calamus asperrimus, Chamærops humilis, or Dwarf Fan Palm, and a very nice specimen of Phœnicophorium sechellarum Messrs. Rollisson are second with Areca Verschaffelti, Areca lutescens, and other good specimens. These form a fine group at one end of the large tent.

Draccænas and Cordylines.—The first prize for four goes to Mr. W. Brown, gardener to Mrs. Alston, Elmdon Hall, who has handsome plants of D. reginæ, Guilfoylei, and Veitchii. Messrs. Rollisson are second, and Mr. J. M. Shuttleworth third for a pair.

Crotons.—The best single specimen is C. pictum, 6 feet high and 5 feet in diameter, with beautifully coloured leaves, exhibited by Mr. Baines. The next best is a fine Croton angustifolium from Mr. Foster, gardener. Mr. Shuttleworth also sends a good plant, though not so highly coloured as that from Mr. Baines.

Alocasias.—The only exhibitors of these are Mr. Coysh and Messrs. Bell & Thorpe, Stratford-on-Avon. They exhibit excellent specimens of Alocasia Lowii, macrorhiza variegata, zebrina, and Jenningsii.

Begonias.—The first prize for three is taken by Mr. Black, gardener to J. Horsfall, Esq., Moseley, with fine plants of Imperialis, Prince Wilgenstein, and grandis; the last two 4½ feet in diameter, and all with large, healthy, well-marked leaves. The second is taken by Mr. Coysh with semperflorens, sanguinea, and coccinea in good bloom, the first-prize group being ornamental-leaved varieties.

Caladiums.—In the open class for the best six, large plants of Houlletti, Cannaertii, Baraquiniana, Bicolor, Chantini, and Wightii from Mr. Jones, Church Road, Edgbaston, are first. Mr. Shuttleworth is second with good specimens. Mr. Westall, gardener to J. Kempson, Esq., Handsworth, is third with good plants.

Pitcher Plants.—Of these only three collections are shown, but they are of great merit. Mr. Baines comes first with a mass 3½ feet in diameter of Sarracenia purpurea, such a mass as we have only seen shown by him, S. variolaris, and a fine specimen of an unnamed sort. Mr. Williams, Holloway, is second with an 18-inch pan of S. purpurea, Nepenthes Rafflesiana with seven fine pitchers, and N. phyllamphora; Mr. Dixon, Norwood Nursery, Beverley, is third.

Orchids.—The collections of Orchids backed with Ferns form a very effective and exceedingly interesting group. In the open class for nine there are three competitors. The first prize goes to Mr. J. Hodges, gardener to E. Wright, Esq., Gravelly Hill, Birmingham. He has a magnificent specimen of the rare Aërides Schrœderii with two branched spikes—we counted on one fifty-three fine flowers; Saccolabium guttatum with five spikes, Lælia purpurata Nelisii, Epidendrum vitellinum majus, its bright orange-scarlet flowers forming a pleasing contrast. Messrs. Rollisson, of Tooting, are second; they have a nice Aërides Lobbii, a handsome example of Barkeria spectabilis, and Cypripedium barbatum. Mr. E. Mitchell, gardener to Dr. Ainsworth, Broughton, Manchester, is third. In the class for six (amateurs), Mr. J. Hodges is again first with a handsome specimen of Aërides Lobbii, A. virens Dayanum with seven spikes, and a nice Phalænopsis Lüddemanniana. Mr. Mitchell is second. In the corresponding class for nurserymen Mr. B. S. Williams has a very fine group; it contains a magnificent specimen of Saccolabium guttatum Holfordianum, Lælia purpurata, Cattleya Mossiæ aurantiaca profusely flowered, Cypripedium barbatum superbum, Aërides Larpentæ, and Anguloa Clowesii. Messrs. Dixon, of Beverley, are second, and stage a highly meritorious group—Saccolabium præmorsum has five spikes, and is in good condition; Lælia purpurata, a handsome specimen, and others. In single specimens, Mr. W. Chapman, gardener to J. Spode, Esq., Rugeley, is first with a Phalænopsis grandiflora, which has two magnificent spikes; Mr. B. S. Williams is second with a well-managed specimen of Cypripedium Veitchii; Mr. J. Hodges is third with Saccolabium guttatum; Mr. G. W. Lawrence, gardener to Bishop Sumner, Farnham Castle, takes a fourth prize with a handsome example of Dendrobium filiforme. In new Orchids in flower, Mr. B. S. Williams gains the first prize with Aërides Ellisii, a species with a long spike of very large richly-coloured flowers.

Heaths.—There is for the time of year a very good display of these. Messrs. Jackson & Son, Kingston, are first in the class for nine large plants in excellent bloom of Erica Massoni major, Tricolor speciosa, Paxtoni, Aitoniana, Turnbullii, Ventricosa magnifica, and others. Mrs. E. Cole & Sons are third. In the amateurs' class for six Mr. Baines, gardener to H. Micholls, Esq., takes the first place with very fine specimens of Shannoniana, venosa, æmula, and others. Mr. Chapman, gardener to J. Spode, Esq., Rugeley, who is second, has fine plants of Parmentieriana rosea, Aitoniana superba, and Ventricosa magnifica.

For single specimens, Messrs. Jackson & Son, of Kingston, are first with a very well-grown plant of Vernoni, 4 feet in diameter and the same in height; and Mrs. Cole & Sons second with a gigantic bush of Cavendishii 6 feet in diameter, and standing about the same from the ground. Third, Mr. Baines.

Ferns.—Of these there is an extensive exhibition, not remarkable for the great size of the plants, but for those shown being so generally good.

Exotic.—Only one exhibitor appears in the class for twelve—Mr. Shuttleworth, Golden Hill, Leyland, who has, among others, fine examples of Todea superba, Leucostegia immersa, Alsophila excelsa, and Cibotium Schiedei. In the nurserymen's class for nine Messrs. Bell & Thorpe are first with a collection, in which Lomaria gibba is especially good. The remaining awards go to Mr. Cypher, of Cheltenham, and Mr. W. E. Dixon, Norwood Nurseries, Beverley. The competition is severe in groups of six, where Mr. Baines, gardener to H. Micholls, Esq., is first. Fine specimens of Gleichenia speluncæ, Lomaria cycadæfolia, and Gleichenia flabellata are included in this collection. Second comes Mr. Brown, gardener to Mrs. Alston, Elmdon Park, near Birmingham, who has, among others, a beautiful example of Todea superba. Mr. Berry, gardener to J. Thorp, Esq., London Road, Leicester, is a good third, and Mr. Bluck, gardener to J. Horsfall, Esq., who is fourth, has a fine Adiantum cuneatum, A. pubescens, Pteris serrulata cristata, large and very good, while an extra prize is awarded to Mr. Lamb, gardener to E. J. Lowe, Esq., Highfield House, Nottingham. J. E. Mapplebeck, Esq., Woodfield, Moseley, sends a good group, as also Mr. Coysh. For six hardy Exotic Ferns the prizes go to Mr. Lamb and Mr. Shuttleworth. Mr. Baines has among specimen Exotic Ferns an immense plant of Gleichenia speluncæ, nearly 5 feet in diameter, and Mr. Shuttleworth another, also very large and fine. These are respectively first and second.

Adiantums.—The best six come from Mr. Shuttleworth. Among them are fine specimens of farleyense, cuneatum, and formosum. In the competition for specimen Adiantums, Mr. J. Bluck, gardener to J. Horsfall, Esq., The Firs, Moseley, Birmingham, has a very fine plant of A. cuneatum 4 feet in diameter, and beautifully furnished. A good plant of the same species also comes from Mr. R. Berry, gardener to J. Thorpe, Esq., Leicester. This takes the third prize, the first going to Mr. Bluck, and the second to Mr. F. Ford.

Tree Ferns.—But few of these are shown, no doubt owing to the difficulty of carriage. Mr. Quilter is first both for a pair and for a single specimen, Mr. Vertigans second for a pair. The second-prize single specimen is a stately Dicksonia from Mr. Shuttleworth; and Mr. Baines is third with a thick-trunked specimen—not, however, with such a handsome head as that just mentioned.

British.—In the amateurs' class for twenty Mr. Lamb is first with a very good group, Mr. Shuttleworth second. J. E. Mapplebeck, Esq., has fine examples of Osmunda regalis cristata, several varieties of Athyrium Filix-fœmina, including coronatum, very fine Trichomanes radicans, and others. Mr. Allen, gardener to J. B. Finnemore, Esq., Birmingham, is second with an excellent group, and the remaining prizes go to Mr. J. Morley and Mr. Farraud, Nottingham. In the nurserymen's class Messrs. R. Wilson & Son, Saltisford, Warwick, are first, and Mr. Clift second.

In the class for twenty, limited to amateurs residing in Warwickshire, Worcestershire, and Staffordshire, J. E. Mapplebeck, Esq., Woodfield, Moseley, Birmingham, is first with fine healthy plants of several forms of Athyrium Filix-fœmina, Lastrea pseudomas cristata angustata, L. æmula, Polypodium alpestre flexile, Polystichum angulare cristatum, Blechnum Spicant ramosum,

and other interesting forms. Mr. Clift, Oakfield Road, Selly Park, is second, and Mr. Holinsworth, Birmingham, third. In the similarly limited class for twelve, J. E. Mappleheck, Esq., is again first; Mr. S. Evans, gardener to C. N. Newdegate, Esq., Arbury, Nuneaton, being second with fine healthy plants. Mr. J. Morley, jun., is third.

Lycopods.—Some excellent pans of these are shown. The first six are from Mr. Shuttleworth, Golden Hill, Leyland. Mr. Berry, gardener to J. Thorpe, Esq., Leicester, is second with beautifully-furnished pans of Selaginella stolonifera, S. denticulata variegata, S. Wildenovi, and others. Mr. Coysh is third. Messrs. Bell & Thorpe have good pans of S. apoda and S. Martensii.

In the class for four Mr. Webb, gardener to J. Gulson, Esq., Stoke, is first with S. mutabilis, growing naturally, and about 3 feet in diameter, and others less noteworthy. Mr. Jones is second, and Mr. Hodges third. Mr. Plumbley, gardener to T. Charlesworth, Esq., has, in addition, a beautiful pan, about 2 feet across, of Selaginella densa.

Ahphimenes.—These are excellently represented, especially in the half-dozen shown by Mr. Webb, gardener to J. Gulson, Esq., Stoke, Coventry, who takes the first place with splendidly-bloomed plants of Coccinea, Longiflora alba, Longiflora major, and three others equally good. Fine plants of Dazzle, scarlet; Longiflora alba, white; Longiflora, violet; Edmund Bossier, and another, from Mr. Marsh, are second; Mr. Cox, Madresfield Court Gardens, being third; and extra prize is awarded to Mr. Bryant, Rugby Nursery.

Gloxinias.—Mr. J. Hodges, gardener to E. Wright, Esq., Gravelly Hill, Birmingham, is first with splendid masses of bloom of Ceinture d'Hébé, Albino, two light-rose-tinted flowers, Walter Beck, fine, Le Russie Virginalis, and Princess Royal. Mr. Marsh is second, and Mr. R. Allen, gardener to J. B. Fennemore, Esq., third. For six drooping-flowered varieties Mr. Marsh is first, with, among others, very good plants of Von Moltke and MacMahon, the whole collection being seedlings.

Subtropical Plants.—Mr. Quilter, Lower Grounds, Aston, exhibits a fine group, including Palms, Dracænas, Aralia Sieboldii, Fan Palms, Monstera deliciosa, Variegated Aloe-leaved Yucca, and the Abyssinian Banana. To this the first prize was awarded, the second going to Messrs. Bell & Thorpe, and the third to Messrs. Rollisson. Mr. Williams, Holloway, has a group consisting of the larger-growing class of plants, and including fine examples of Cycas revoluta, Pandanus elegantissimus, Chamærops Fortunei, Corypha australis, and Aralia Sieboldii aureavariegata.

Agaves.—Those in the three collections shown are, without exception, handsome plants. Mr. Croucher, gardener to J. Peacock, Esq., Sudbury House, Hammersmith, is first with Agave Tonelliana, A. filifera, A. Schidigera, A. Regeli macrodontha, A. ensiformis, and A. applanata. Mr. Williams, who is second, has a fine plant of A. filifera, A. densiflora, A. zylonacantha latifolia, A. applanata, A. lopantha, and A. Regeliana. Mr. W. E. Dixon is third.

FRUIT.

The show of Fruit is not very extensive, considering the national character and importance of the meeting, nor, with some few exceptions, is the quality anything above the average.

Collections.—Two only are staged for exhibition. That from Mr. G. T. Miles, gardener to Lord Carrington, Wycombe Abbey, High Wycombe, contains three bunches of Black Hamburgh Grapes, 9¾ lbs. weight, but badly coloured; Foster's White Seedling, 5¾ lbs.; two handsome Queen Pines; excellent Violette Hâtive Peaches; Elruge and Murrey Nectarines; Bailey's Green-fleshed and Royal Ascot Scarlet-fleshed Melons, and Sir C. Napier Strawberries. Mr. W. Lynn, gardener to Lord Boston, Hedsor, Maidenhead, has Black Hamburgh and Buckland Sweetwater Grapes, two nice Queen Pine Apples, Peaches, Nectarines, Melons, and Cherries. First prize, Mr. Miles; second, Mr. Lynn.

Pines (three fruits).—With the exception of three large fruits of Black Prince, the productions in this class are all Queens. Eight competitors. Mr. R. H. Smith, gardener to H. Walker, Esq., Calderstone, Liverpool, is first with three handsome fruit; second, Mr. J. Barnett, Decker Hill, Shifnal; third, Mr. P. Middleton, The Gardens, Wynnstay, Rhuahon. In the class for any variety, the prizes are all awarded to Queens. Mr. H. Smith is again first, Mr. J. Barnett second, and Mr. G. Ward, gardener to T. N. Miller, Esq., Bishop Stortford, third. A very handsome Queen from M. A. Saurin, Esq., Crielton, Pembroke, from not being entered in time, was disqualified, but had an extra prize. An extra award was also given to one from Mr. Harris, The Gardens, Singleton, Swansea.

Grapes.—Black Hamburghs are, as a rule, wanting in colour; some of them have the bloom washed off by syringing, but the prize dishes are good. In the class for a single dish of Black Grapes, any variety, the first prize is awarded to Mr. J. Gough, gardener to G. Pulley, Esq., Lower Eaton, Hereford, for good bunches, large in berry, but a little wanting in colour. Second, comes Mr. Rawbone, gardener to the Earl of Shrewsbury and Talbot, Alton Towers, Cheadle, with well-finished bunches; and third, Mr. G. Silcock, gardener to Sir C. W. Shakerley, Bart., Somerford Park, Congleton.

White, single dish. In this class there is nothing nearly equal to the splendid Muscat of Alexandria exhibited by Mr. J. Smith, gardener to W. Blinkhorn, Esq., Waterdale, St. Helen's, Lancashire, who gains the first prize. The berries are large, even in size, and finished-off to a fine golden colour. Mr. Wakefield, gardener to F. Gretton, Esq., Bladen House, Burton-on-Trent, is second with Foster's White Seedling. The other dishes are not in condition.

Basket of Grapes, 12 lbs. Mr. J. Smith is again first with his Muscat of Alexandria. Mr. M. Henderson, gardener to Sir G. Beaumont, Cole Orton Hall, Ashby-de-la-Zouch, is second with Black Hamburgh; and Mr. G. Sage, gardener to Earl Brownlow, Ashridge Park, is third with the same variety. Ten baskets are in competition.

Prizes are also offered for three varieties of Grapes, three bunches of each. There are five exhibitors, and the first prize is awarded to Mr. G. Sage, who has well-ripened Muscat of Alexandria, Black Hamburgh, and Foster's Seedling. Mr. W. Broadbridge, Walton Gardens, Warwick, is second; and Mr. T. Bannerman, gardener to Lord Bagot, Blithfield, Rugeley, who has a good dish of Golden Champion, is third.

Peaches.—There are twenty-two dishes staged, all of them good, and the prizes are keenly contested. Mr. G. B. Tillyard, gardener to the Earl of Yarborough, is first with fine examples of Grosse Mignonne; Mr. G. Jackson, gardener to J. Tyrer, Esq., Tixall Hall, Stafford, second with very fine Noblesse; the third prize being awarded to Mr. J. Gardner, gardener to Col. Astley, Elsham Hall Gardens, Brigg, Lincolnshire, for Barrington.

Nectarines.—These are not so numerously shown, but there are some very good, and, considering the season, well-coloured fruit. Mr. J. Douglas, Babworth, Retford, has the first prize for very large Pitmaston Orange. Mr. W. Lynn is second with well-coloured Violette Hâtive. Mr. E. Smith, Bentham Gardens, Upper Elston, Cheltenham, is third with Elruge.

Figs.—Single dish. Mr. W. Coleman, The Gardens, Eastnor Castle, Ledbury, is first with very fine Brown Turkey. Mr. G. T. Miles is second; and Mr. J. Day, gardener to A. Seymour, Esq., Norton Hall, Daventry, is third with the same sort.

Cherries.—Mr. G. T. Miles is first with Black Circassian; Mr. J. Day, second, and Mr. J. Turk, Tewkesbury Road, Cheltenham, third.

Melons.—Twenty-six are exhibited, but none of them are very remarkable for flavour. In Green-fleshed the first prize is awarded to Mr. J. Read, gardener to R. E. Egerton Warburton, Esq., Arley Hall, Northwich, Cheshire, for Victory of Bath. Mr. J. W. Chard, gardener to Sir F. Bathurst, Bart., Clarendon Park, Salisbury, is second; Mr. W. Coleman, third. In Scarlet-fleshed Mr. T. Mitchell, gardener to T. Cross, Esq., Ruddington Hall, Notts, is first with a very nice Scarlet Gem. Mr. W. Chard is second with Malvern Hall.

Strawberries.—For six dishes distinct kinds, Mr. E. Smith is first with good dishes of President, Keens' Seedling, Trollope's Victoria, Sir Harry, Goliah, and Rifleman. Mr. J. Turk is second, and Mr. J. Durbin, Englishcombe Rosery, Bath, third. In single dishes, Mr. G. T. Miles is first with very fine examples of Dr. Hogg; Mr. J. Barnwell, Garnons, Hereford, is second with Premier; Mr. J. Turk third with Goliah.

Miscellaneous.—In this class Messrs. Lane, of the Nurseries, Great Berkhampstead, are first with two Vines in pots, and a third prize is awarded to Mr. G. T. Miles for a dish of Orleans Plums. An extra prize is awarded to Dr. Moore, of the Botanic Gardens, Glasnevin, for examples of fruit of a species of Lucuma. There is also a branch with exceedingly fine examples of fruit of Xanthochylus pictorius (the Gamboge tree), from the nurseries of Messrs. Osborn & Sons, Fulham. This plant is growing in one of the stove houses there; it is about 6 feet high, and carries three clusters of fruit of a deep yellow colour, the largest being 6¼ inches in circumference; it is nearly round, with a prominent nipple at the apex. The leaves are highly ornamental, large, and broadly lanceolate. The fruit was labelled "poisonous."

The remainder of this report, as well as that of the Rose Show held this day, will appear in our next issue.

ENTOMOLOGY.

The Insect World; being a Popular Account of the Orders of Insects, together with a Description of the Habits and Economy of some of the most interesting Species. By Louis Figuier. *Revised by* P. Martin Duncan, F.R.S. *With* 579 *Illustrations.* Cassell, Petter, & Galpin.

Anyone wishing to obtain a useful knowledge of insects, or to arouse in anyone an interest and desire for information about this wonderful division of the animal world, should read the volume now before us, as well as Kirby and Spence's "Introduction to Entomology." We know of no two volumes so

effectual in winning attention, nor any two which so well illustrate each other, nor any one that so thoroughly annihilates the prejudices against entomology. Botany is more popular, and we love that science, but we love entomology too, and we will jot down a few of the answers to the "whys and wherefores" that may be suggested; but we cannot spare space to answer these in detail, and therefore will group our reasons for delighting in the science under three heads, the first of which shall be the beauty of its objects. Every member of an insect—its eyes, wings, antennæ, and even the mere down upon its limbs—when viewed through the microscope is marvellously beautiful. The eyes of a butterfly, says M. Figuier—

"Are more or less spherical, surrounded by hairs, and composed of innumerable facettes. Colours are seen on these as various as those of the rainbow. But the colour which serves as a base to all is black in some, grey in others; then again there are different gold or bronze colours of the greatest splendour, inclining sometimes to red, sometimes to yellow, sometimes to green. On the compound eye of a butterfly as many as 17,325 facettes have been counted."

Then the entire form of a butterfly is of surpassing beauty, and its floating motions graceful. We again borrow from M. Figuier—

Camberwell Beauty (Vanessa Antiopa).

"The Vanessa Antiopa, one of the greatest of entomological rarities in England, is not very common in the woods about Paris, but it is frequently found in the environs of Bordeaux, and, above all, at the Grande Chartreuse (in the department of Isère). The Parisian collectors go as far as Fontainebleau in pursuit of this beautiful species, with angular wings, of a dark purple black, with a yellowish or whitish band on the hind border and a succession of blue spots above it."

Nor is the beauty confined to the anatomy and form, but is displayed in other of their gifts—the soft light of our own glow-worms, the brighter brilliancy of the tropical fireflies, the social economy of the bee and the ant, the webs of the spiders, the ingenuity of the clothier, carpenter, mason, and upholsterer bees, are all instances of the beautiful. Their motions are peculiar, and many of them very graceful. One minute fly moves its legs so rapidly that it makes 540 steps in half a second; the common flea and some frog-hoppers jump distances equal to 250 times their own length, and if a man could do the same he would pass over a quarter of a mile at one leap; and the common fly walks along the ceiling of a room by means of the vacuum-forming soles of its feet, an arrangement as beautiful as wonderful. We were about to dwell upon the instincts and reasoning powers of insects, but we must pass on to their usefulness.

They are the most effective scavengers of the world, and we could fill pages with the list of flies and beetles which clear away decaying vegetable and animal matters, which would otherwise be offensive and deleterious. The visits of insects to many flowers are absolutely necessary for their fertilisation, for otherwise the pollen of the stamens would not come in contact with the pistils, and the insects are lured to this, on their part, unintended usefulness by the honey which the flowers produce. Insects not only are eaten by man and quadrupeds, but are the sole food of many birds. Though of limited use to man as his food, they are of vast importance to him in supplying his other needs and luxuries. The Spanish fly is one of his powerful medicines, to the gall Cynips he is indebted for his ink, from the cochineal insect he obtains his most brilliant dye, from the silkworm his most luxurious dresses, and from the bee his honey and wax. On this last-named insect M. Figuier's volume is rich in details and illustrations, and we will give one brief extract relative to the swarming as a specimen.

"When a branch of a tree has been selected by a certain number they fix themselves on it. Many others follow them. When a great many have collected, the queen joins the throng, and brings in her train the rest of the troop. The group already formed becomes larger and larger every instant. Those which are still scattered about in the air hasten to join the majority, and very soon all together compose one solid mass or clump of bees clinging to each other by their legs. This cluster is sometimes spherical, sometimes pyramidal, and occasionally attains a weight of 9 lbs., and may contain as many as 40,000 bees."

Cluster of bees hanging to a branch.

But insects are as powerful to injure as they are to benefit mankind. Locusts, aphides, black fleas, caterpillars, grubs, sawflies, ruin the crops of the farmer and gardener, and lessen their profits thousands of pounds annually. Let one of the smallest of these depredators serve as an example. It is the Pea weevil, and thus noted by M. Figuier:—

"The Pea weevil (Bruchus pisi), is brown with white spots; it comes out of the Pea at the end of the summer. The female lays her eggs on Peas which are ripe and still standing, in which the larva scoops out a habitation, and then makes its exit by a circular hole. It remains at rest all the winter, and is not hatched till towards the following spring. The Bean weevil (Bruchus rufimanus) marks each Bean with many black spots. The Vetch has also its special Bruchus. The Wheat weevil (Calandra granaria), of a darkish brown, lays its eggs on the grains, of which the larvæ then eat the interior."

Pea Weevil (Bruchus pisi), magnified.

This reference to the ravages of insects leads us to point out one special use of entomological knowledge—the power to distinguish our insect friends from our insect enemies. Had this knowledge been possessed by the Hop-growers of Kent and the Bean-cultivators of Middlesex they would not have deprecated the arrival of myriads of ladybirds. In their ignorance they attributed the plague of aphides to the coming of the ladybirds, which in truth the latter came to the coming of the ladybirds, which in truth the latter came to devour. Nor would the orchardists of Evesham have cut down their Poplar trees because, as they erroneously thought, the cottony insects upon them imparted them to their Apple trees. The cottony insect of the Apple tree, Aphis lanigera, is totally different from that of the Poplar.

We hope we have said sufficient to induce many of our readers to peruse M. Figuier's interesting volume.

Strawberry Supports and Rivers's Early Cherry.—We find the simplest and most lasting supports are a stout wire bent in this form ⊓. Rivers's Early Cherry is, with us (Tice-

hurst), quite ripe (June 16th). It is a prolific sort—large, handsome, and of good flavour.—OBSERVER.

PLANT NEIGHBOURS OF NICE.

I AM not sure that it is worth while noting for you the few observations that I made on plants while walking about and sketching in the neighbourhood of Nice during March and April last, but, as you wish it, I will try. There are Floras and Guides that enter more fully into the subject, and I will only venture upon a little familiar gossip about plants which struck me as most interesting to myself—a gossip which forms the great charm of your pages, and which leads us all to feel as if "D.," of Deal, the "WILTSHIRE RECTOR," and many others who love plants were often sitting with us, carelessly talking over the tea table of what we have most admired in our walks.

To begin with the Olive, snubbed by many travellers as being too uniform in its greyish-green colour. I think it a very handsome tree, and know nothing more beautiful than a landscape with the blue Mediterranean, the green corn fields, red rocks, and a forest of Olives, which, as the breeze rises or falls, changes from sombre grey to the bright silvery tint which the under side of the leaves gives. What struck me most as worth noting is its peculiar dependance on the immediate neighbourhood of the sea. In the north of Italy, at Florence and elsewhere, the Olive is not a large forest tree. Along the Riviera, as at San Remo, Beaulieu, and Cannes, seems to be the district where, overhanging the sea, it attains its greatest size. The largest tree is at Beaulieu; it measures 26 feet 6 inches in girth at 4 feet from the ground, 47 feet at the ground, and is 75 feet 6 inches high. There may be some higher trees in that forest, but not much; about 75 feet may be taken as the average height in this district. The Olive trees here are too much crowded together to show much beauty of form, but in the hedgerows about Cannes they stand at a sufficient distance apart to show out as fine forms as any of the Oak and Elm hedgerows in England, and grow to great sizes. They diminish in size as you leave the sea in passing from Toulon to Marseilles. From Marseilles on the left bank of the Rhône they flourish, but not larger than our orchard Apple trees nearly as far as Tarascon and Avignon; but as you turn to follow the right bank of the Rhône towards the Mediterranean they will scarcely live. They are seen struggling not much larger than Gooseberry bushes, and I saw whole fields killed to the ground. They reappear as fine trees, though not to be compared to those on the Riviera about Montpelier and Cette, but disappear entirely when the Mediterranean is left behind on the route to Carcassone. This habit of the Olive seems to me worth noting.

Pinus maritima is the next widespread tree in the south of France. Except for the production of tar it seems to be one of the least valuable of the Pines. It is of low growth; and although it covers a great part of the *landes* of Bordeaux, it seems not so well suited to rough it as the Scotch Fir. I allude to it from the melancholy spectacle that I saw along the railway from Dax to Bordeaux. Some six years ago, when I last passed there, I admired the vast work of planting these desert *landes* undertaken by the Emperor: as far as eye could reach, on each side these Pines were sown broadcast or planted from the nursery in lines, and in a most flourishing condition, some of the plantations being from 14 to 15 feet high. When I last passed they were nearly all dead. They seemed to have died last year, large tracts looking as if they had been burnt; but it was not so, the cones still hang on the dead branches. I could see nothing to account for this failure. Had it been the roots reaching some saline beds or bad subsoil the youngest trees would not have died as well as the oldest. I suppose that water must have lain unusually deep last year, but hope that we shall hear some explanation of this melancholy sight. It is a curious fact that further north, at Fontainebleau, an attempt was made in 1684 to plant large spaces in the forest with this Pine: they were all killed by the winter of 1709. Louis XVI. tried to plant them again, but with no better success. Then Le Monnier, physician to Marie Antoinette, introduced the Scotch Fir, which succeeded thoroughly, and now forms a great feature in the forest. So much for the necessity of consulting the *genius loci* in planting.

To return to the sunny south. One of the most valuable introductions of late years has been that of the Eucalyptus, or Australian Gum Tree. The growth of these trees at Nice is quite wonderful, springing up sometimes 9 feet in the season. I have a section of a tree only nine years planted which is 2 feet 6 inches in circumference, and the wood is exceedingly hard. Thousands of acres are, I am told, planted in Algeria, and they are speculating upon planting them near Nice for the purpose of making railway sleepers. They are singularly beautiful trees. The leaves up to about 12 feet high are oval, thick, and of a powdery glaucous colour; above that they completely change their shape into a long narrow sickle shape and green colour, free from powder. When first shooting out they have every shade of red and purple hues, and are very ornamental. What purpose of Nature is effected by this change of leaf I cannot imagine. We are accustomed to suppose that the Holly losing its prickles where it shoots above the reach of cattle is because Nature does not grow prickles where not of use. Perhaps some Australian reader may supply some reason for this change in the Eucalyptus.

The next tree that arrests one's attention in the neighbourhood of Nice is the Schinus molle, or False Pepper Tree. It grows to a large size—about 40 feet high, and with its light pinnate foliage is one of the most graceful of trees. But the Palms are what give a quite oriental character to Nice. Although well known of old in the Palm forest of Bordighera and along that part of the Riviera, they are of comparatively modern introduction into the town and environs of Nice. They are now everywhere along the promenades and in the gardens around Nice. They transplant them from Bordighera, often paying 450 for one tree, and they seem to bear removal admirably. They flower and bear fruit, but do not ripen it. The Date Palm is the commonest, and its long raceme of yellow fruit is very ornamental. There are good specimens of the Sago Palm, but not many. There is said to be only one male plant of the Date Palm in the neighbourhood of Nice, and it is in the garden of the Villa Bacquis behind the English church. One of the best Palm trees is in the Rue St. Etienne. It has a stem 28 feet 6 inches high to the springing of the leaves, and to the top 41 feet 6 inches. I do not think there are many higher.

There is one very fine specimen of the Cedrus atlantica, and I believe the only one in that district of Nice. It is a very beautiful tree, with a straight clean stem of 27 feet, and then a fine spreading head, making the extreme height 59 feet; the girth at 4 feet from the ground, 6 feet 6 inches. The two best specimens of the Ilex I saw were at the convent of Cuniez, which are supposed to be of great age. Their girth at 4 feet, is 8 feet 4 inches one, and 8 feet the other; height only 50 feet; but they are very wide-spreading trees. The Phytolacca is much plantcd, grows very vigorously along the seashore, and is there, on the Promenade des Anglais, headed every season, and makes long vigorous shoots in the summer.

Another of the most graceful trees on the Promenade of Nice is the Tamarisk, which is grown as a standard alternating with Phytolaccas and Palms, and forms very beautiful heads of raspberry-cream-coloured flowers. One of the most striking and beautiful of the trees is the Carouba, or Ceratonia siliqua, the long bean-like fruit of which is used for feeding horses. It is a very beautiful evergreen, with close dark green foliage, not unlike some smooth-leaved Hollies. It seems to flourish out from the crevices of rocks where nothing else would grow. On a steep precipice in the neighbourhood of Mentone I found one old tree, the stem of which, from the nature of the ground, I could not accurately measure, but estimated it about 12 feet in circumference.

Those plants that struck me as new to us who live further north, are the Araucaria or Colymbea excelsa, which grows rapidly, and flourishes in a situation fully exposed to the sea at the Villa Gasteau, now called Les Palmiers, at Nice. I estimated the height of two of these perfect trees growing without having lost a branch, and in the most vigorous manner, at from 30 to 40 feet high. These gardens, upon which a banker of the name of Gasteau had lavished enormous sums of money on works executed in the worst possible taste, contain some of the finest points of view in the neighbourhood of Nice, and some of the rarest trees. M. Gasteau having naturally failed, the place was bought by a Dutchman, who is dividing it into separate villas. I had fortunately walked in at the open gate and seen the most of the garden, when I was told that visitors were not allowed in, and, of course, retreated at once, and wrote a note to the proprietor, asking his leave to walk through again, as I wished to observe the height and make sketches of some of these trees, but got so peremptory a refusal that I can only allude to the height of the Araucaria excelsas by guess. One thing struck me as curious, that wherever I saw the Araucaria imbricata, which flourishes so well here, it seemed not to flourish at all there, and the Colymbea Cunninghami seemed also very struggling. The Russelia juncea grows in the Jardin Publique at Mentone to about 12 feet high; but a rather similar plant, the Casuarina equisetifolia, seems to flourish at Cannes in a most remarkable manner, growing 18 inches in the year, and looking as flourishing as a young Larch tree. In Algeria they grow into timber trees. I was surprised not to see the Catalpa, which scents the air of Como, and the Paulownia, of which I saw at Tours a large tree covered with beautiful and fragrant flowers, and both of which would, doubtless, flourish on these shores of the Mediterranean. The Australian Acacias grow to a great size, longifolia is the most common; and I saw at Cannes the Camphor Laurel in perfect health and 12 feet high.

Let us now turn to the shrubs which are more or less of an exotic character with us, and which strike the tourist as most remarkable for beauty. First comes the Wigandia, which is treated as an annual in the neighbourhood of Paris, and here as a greenhouse plant. I saw plants of it 10 to 12 feet high, and spreading over 15 feet, covered with its beautiful purple flowers,

and existing perennially, although a very severe winter sometimes cuts it down. Next comes Sparmannia africana, one of the most popular plants both in the gardens and in pots for house decoration; it is quite hardy at Nice, and seen everywhere. Then there are Cratægus or Photinia glabra, which grows 10 or 12 feet high in large bushes, with beautiful foliage varying from shades of red when young to deep green, and large Laurustinus-like flowers of blushing white; Pittosporum sinense, Ribes roseflora and other varieties, Habrothamnus elegans, Aralia papyrifera, Abutilon, Justicia, Salvia, a pretty white shrub, called there Salvia oceana, not noticed as such in the "Bon Jardinier;" Solanum marginatum, Ficus rubiginosa, Anthyllis Barba-Jovis, Cyanauthus, Pittosporum undulatum, and Heliotropes flourish perennially in the interesting garden of Dr. Bennett near Mentone. The Anthemis parthenoides, which is used so much as a pot plant in Paris, grows freely everywhere, and I saw a yellow variety at Nice which I thought very pretty. There is one great favourite in the villas about Nice which I cannot admire. It is Cineraria populifolia, which is something like a gigantic Ragweed.

I shall just notice one other little plant which strikes the stranger's eye in the country about Toulon, the Everlasting, or Helichrysum orientale. One sees large fields carefully cultivated of this plant, which looks like a common Pink, only that the leaves are whiter. This is cultivated largely to supply the crowns that cover the graves in Père la Chase and other French cemeteries as an emblem of lasting sorrow and immortality.

Many of these plants would only attract the notice of one accustomed to look for pleasure in contemplating the beauties of every variety of vegetable growth; but the Orange groves, the Citrons, the Roses, the Camellias, the universal undergrowth or carpet of Parma Violets, are what charm the many. In the neighbourhood of Nice one of the most charming of Orange groves is the Villa Bermond, where the fruit is sold fresh from the tree, and where plants of 5 or 6 feet high can be bought for ten francs, and carefully packed for eight francs per each package of four trees. I was there on the day that the Prince of Wales ordered some of them, and I note this for the benefit of owners of orangeries in England.

Perhaps the finest Orange grove is at the Jardin des Hesperides near Cannes, which is, I suppose, some ten or twelve acres in extent, and all large Orange trees; some 12 feet high, and with round heads loaded at the time I saw them with ripe Oranges as fully as any Apple tree is with Apples in our orchards. It is crossed by broad well-kept gravel walks, dividing it into square plots, and there are seats in which visitors can sit and eat as many Oranges as they choose to buy for a few sous. As the fruit was thus ripened the trees were bursting out into full flower again.

One of the most curious instances of the effect of minute changes in climate is, that from Toulon to beyond Nice the groves and gardens are full of Oranges and scarcely any Lemons; once Nice is passed there are groves of Lemons covering the hillsides and scarcely any Oranges. The Lemon, which has one advantage over the Orange of blossoming nearly all the year round, is a more delicate plant—just sufficiently so to feel, with the invalid, some minute difference in the climate along the northern Riviera around Mentone and San Remo.

The profusion of Violets, Roses, and Camellias that are hawked about the streets of Nice during March and April is very attractive, and the taste with which the bouquets are arranged very remarkable. All through the country the little children run about offering little bouquets of Violets and wild flowers arranged with a taste that you would not find in Covent Garden. The white Camellias are not so beautiful as what we have in our houses; they are very white, but do not open out, and have the appearance of a Fuchsia with the outer petals recurved, and the centre petals standing upright and close together. The Rose in that season appeared to me to be chiefly Safrano of the large Roses; but the masses of the Yellow and White Banksian that hang down from the walls of every garden are perhaps the most striking objects at that season. The Scarlet Geraniums, which grow everywhere, are chiefly a Nosegay of a pinkish scarlet. I have seen a hedge on the roadside at Beaulieu 6 feet high, and masses hanging over the rocks on the seaside at the same place; but they grow everywhere, and are very beautiful.

The Aloes seem to grow wild along the seashore, and their immense flower-stalks, which often exceed 20 feet in length, and some 5 inches in diameter, are very singular objects. The variegated Aloe is much grown in the gardens along with the Prickly Pear, which attains a great height and girth of stem. The rapidity of vegetation is very remarkable, and I believe that this is mainly owing more to light than heat. Dr. Bennett informed me that the light at Mentone was ascertained to be four times greater than the light of Paris, and I believe that it is to this that is owing, which astonishes one so much, that the Lemon grows thickly under the thick forests of Olive trees, and corn ripens, Potatoes grow, and Violets blossom again under these Lemons, so that the production of the same area of land is there multiplied by three as compared with our northern acres.

I think I have now noted the principal points that struck me as a passing stranger as interesting on these shores. Would I exchange their untidy though luxuriant gardens with ours—their blazing sun with our chequered sky? Certainly not: they have all their enjoyment at once; when June comes everything is burnt up. It is true that they have Roses in February and March, but we have them from June to November, and what variety of scent and bloom adorn our gardens for two-thirds of the year! Nature does everything there, and they are content with what she does; but it is with gardening as with farming, where difficulties have to be overcome success goes on until it is more abundantly successful, and coy Nature is most lavish of her favours to the most enterprising of her wooers.—C. W. H.

AQUILEGIA GLANDULOSA HARDY.

I observe, at page 498 of your Journal, the remarks of "A. R." respecting the beautiful Aquilegia glandulosa, in which a caution is given against hoping to grow it in the open border in the south of England with success; and that, speaking of Kent, the seedlings dwindle away under every treatment. My own experience of some years leads me to say that both on the chalk formation and the clay soil of Surrey it succeeds very beautifully. I sow the seed saved regularly, and generally under glass, though it does well in places in the open border. Some years since I found it growing in Forfarshire in splendid masses. I have always been fortunate with it up to the present season, having had splendid trusses of bloom on the older plants, while those of later growth have almost all bloomed fairly.—W. B. H.

Replying to the letter of "A. R." in the Journal of 20th inst., we cannot account for his failure in the cultivation of this plant. Last year we flowered it so near London as Twickenham, and the plants are at this moment in capital condition.—James Carter, Dunnett, & Beale.

We regret to have to record the death of Mr. R. C. Kingston, of the Royal Herbarium, Kew. He died on the 25th inst., aged twenty-five years.

Died, June 14th, at the Moulsham Nurseries, Chelmsford, Mr. Joseph Saltmarsh, in his 71st year.

MERITS OF STRAWBERRIES.

In Doings of the Last Week (page 485), "R. F." is desirous of knowing something of the hardiness of Dr. Hogg Strawberry. In complying with his wish I beg to state that our plantation of this sort amounts to 444 plants, and out of that number I find on examination twenty-two blanks; all the rest of the plants are in the most perfect health, and the blossom they have shown indicates that the fruit will be very fine. This is the second year of the plantation, and I expect a good crop; but whether that will so weaken the plants that they will not be able to withstand the winter well I am not prepared to say. Our soil is light and sandy, resting on a sandy subsoil; but I endeavour before making a fresh plantation to have the ground trenched from 2½ to 3 feet deep, at the same time introducing plenty of manure. I give an annual dressing of well-decomposed manure in the autumn, but I do not leave it on the surface, as practised by some, for I have it lightly forked-in, bringing up as much soil as covers the manure. This gives the plantation a more tidy appearance, and I am convinced secures better results as regards the manure than leaving it on the surface.

I gathered my first lot of fruit out of doors on the 17th inst.; the varieties were Black Prince, Marguerite, and Dr. Roden's Early Prolific; the last-named I consider in every way a first-class Strawberry, as it is very early, a good bearer, and of a nice form. Marguerite is a grand Strawberry if picked carefully and dished at once, but I find it does not bear carriage well, being easily damaged when fully ripe. As far as my experience goes I do not consider it a good forcing variety.

I can fully endorse the statement of "R. F." as to Strawberries last season not showing blossom and this year being loaded, for I had a number of Keens' Seedling growing on a border, scarcely any of them blossomed last year, and I came to the conclusion that they were barren; accordingly I

had part of them destroyed, and planted the ground with Marguerite and Dr. Roden's Early Prolific. Those plants of Keens' Seedling which I left have this year been a mass of blossom, and have set a large crop.

The following sorts promise to bear a very heavy crop—viz., Black Prince, Marguerite, Prolific (Dr. Roden), President (a first-rate variety), Empress Eugénie, Sir Charles Napier, Prince of Wales, Cook's Magnificent, La Constante, British Queen, and Dr. Hogg. I use clean straw to keep the berries free from dirt; I consider it superior to anything else.—J. A.

ANTHURIUM SCHERZERIANUM SEEDING.

The seeding or fruiting of this Anthurium is not, I am well aware, a new or even rare occurrence, and we often hear of plants being raised from seed produced in our gardens. Those who have had the opportunity of seeing a plant when thus fruiting, will doubtless have been struck with its curious and interesting appearance when bearing its fruit on the spadix, or elongation at the top of the spathe.

Anthurium Scherzerianum.

One plant of several here has produced on one foot-stalk the most fruit that I have seen; the spadix, which is about 9 inches in length, is completely covered with its red wart-like berries to the number of nearly two hundred. Each of these will contain from two to three or even more seeds. A few such as this would aid considerably to increase the stock of this truly beautiful plant, which certainly should not be absent from any collection of exotics, for it can be conveniently grown in one of the warmest houses, and when in bloom placed in the flowering department, where its noble spathes contrast well with the delicate flowers of the Orchids, presenting an appearance not to be surpassed, if equalled, by any other stove plant.

As a rule, I believe the berries ripen at intervals, by fits and starts, but in the case referred to they are tolerably regular from top to bottom. This freedom in setting I attribute to the ants, which are extremely fond of traversing the blooms at all stages of their development.—C. J. White.

HEATING A SPAN-ROOFED GREENHOUSE.

It is not very easy to advise your correspondent "C. A." (page 463), without seeing the place and knowing all the details; but I think if a few of your correspondents narrate their own experience of successful work it will assist him materially.

I have a span-roofed house 16 feet by 12 feet, which I furnished with heating apparatus last autumn. I considered the question of heating with stoves inside and outside, flues, gas, oil, &c., and came to the conclusion that there was nothing like hot-water pipes. The difficulty then was to find a suitable boiler. I got together all the prospectuses I could find of boilers—tubular, saddle, conical, elliptic, cylindrical, double-L, convoluted, twin, and a great many others, some of them requiring to be set in a mass of brickwork and consuming as much fuel as a small steam engine, and others requiring no brickwork and fed principally on cinders. After looking them over I preferred the stove boilers of Mr. Riddell and Mr. Lynch White as most likely to answer my purpose, and finally decided on one of the former, and do not regret the decision. I can only speak from one season's experience, but so far I am perfectly satisfied. My Geraniums when turned out were pictures of health and vigour, and my Vines now in the second year are making excellent wood. The fire was attended to at six o'clock in the evening, and four mornings out of five it was still burning when my man came at 6 A.M. to attend to it, when it was not relit unless necessary.

The fuel consumed was cinders, small coal, and a few small lumps of coal mixed, about two or three pecks in a day. If I had had no man to attend to the stove boiler early in the morning I should have tried a gas boiler, as requiring less attention; but I think the expense of the gas consumed would be a consideration. I considered for some time whether there would not be a loss of heat in putting the stove boiler outside, and whether I could not put it inside, or partly inside, so as to economise heat; but the loss of heat is not so much as I expected with the stove boiler outside, and the smoke is a fatal objection to putting it inside. It is fed at the top, and when you light the fire the lid is taken off, and all the smoke for about five minutes comes out there, so that if it is put inside it must be cut off by a partition and have a door communicating with the open air.

The cheapest and best plan is to put the stove boiler outside in a stokehole near the brickwork, at some point where it can be covered over by a lean-to, and where the pipe from the stove boiler can be held up by irons driven into the brickwork or woodwork above. Two posts driven into the ground would support the lower end of the roof, and the sides might be boarded-in, or zinc used if there were any danger of scorching the wood. "C. A." had better see one of the stove boilers before he finally decides where to put it. My hot-water pipes are of 3-inch size, an I run along two sides and one end of the house, and I would recommend "C. A." to have the same; say 110 feet of 3-inch pipe, and No. 2 size stove boiler, would warm the house; but the stove boiler must be 3 feet below the level of the ground to work properly.

From the plan it appears as though one of the corners to the right or left of B would be the best place for the stove boiler, and then pipes would run to the right past D and turn back, and to the left past C and turn back, which would make the two sides and one end recommended, leaving the end H without any, which would be all the better, as the entrance is on that end.—Amateur, *Cirencester*.

ARE GLOIRE DE DIJON AND MARÉCHAL NIEL TEA ROSES?

At York Show, June 12th, a prize was given for the twelve best blooms of any kind of Tea-scented Roses. The only Roses staged were three stands of Gloire de Dijon, and one stand Maréchal Niel. The Judges, of whom I was one, gave the first prize to Maréchal Niel. The judgment was questioned, not on the merit of the Roses, as there was no doubt of the box of Maréchal Niel being infinitely superior to the other three, but because Maréchal Niel is put down in the Rose catalogues as a Noisette. I promised I would write to your Journal, and ask the opinion of other Rose judges on the subject. I have little

doubt myself that Maréchal Niel is quite as true a Tea Rose as Gloire de Dijon, the one being a cross between Noisette and Tea, the other between a Bourbon and a Tea; moreover, Maréchal Niel has far more of the true Tea scent than Gloire de Dijon. However, the question is, If the schedule states Tea-scented, whether only those which are entered in Rose lists as Tea-scented are to compete, or whether the Noisettes may be allowed to compete as well? I shall be glad, however, to elicit the opinion of other judges and Rose-growers on the subject.—C. P. Peach.

POLES.—No. 1.

Seat of Robert Hanbury, Esq.

A little to the south of Ware, in Hertfordshire, is the manor of Thundridge, in Anglo-Saxon days known as Terrich. Its tenant at that time was Alnod, a vassal of Archbishop Stigand's; and though it changed possessors during the Norman dynasty, yet it remained the property of the Church, for its tenant held it of the Bishop of Bayeux. In Edward I.'s time it belonged to John Dive, and the inquisition at his death sets out that, besides lands and messuage, he had a dovecote here.

Poles.

From his heir it passed in the time of Edward III. to a son of Sir William Disney, who sold it to John Gardiner, "citizen and fishmonger of London." After many descents in the same family, John Gilbert Gardiner, about the year 1782, conveyed away parts of the estate, called Poles and Downfield, to Sampson Hanbury, Esq. During the occupancy of Mr. Sampson Hanbury Poles made no pretensions either to gardening or to residential importance, the owner reserving it merely as a hunting-box, where he kept his stables and kennels. Only so far as it contributed to his well-known love of sport did Poles hold much importance in the mind of Mr. Sampson Hanbury. At his death, however, the estate was bequeathed to his nephew, Mr. Robert Hanbury, the present excellent proprietor, and in his hands it was destined to become one of the most beautiful examples of landscape and horticultural gardening to be found in the country. The park, which contains some fine old timber, was on his succession greatly beautified: new approaches were formed, and the whole of the present splendid garden and pleasure grounds are of his creation. It is not, however, our intention to go into detail respecting this place, which has on more than one occasion been previously noticed in our pages. Our present object is merely to furnish two views, to give our readers some idea of the style in which Mr. Hanbury has created this charming place.

There is a part of the arrangements which we think has never yet been noted in any of our descriptions of Poles, and it is one for which we need make no apology for noticing, seeing that in doing so we have an opportunity of commending it to the attention of employers of labour. Near the gardeners' house, itself a gem of architecture and internal comfort, there is a building, the upper part of which serves as a fruit-room, and the lower storey as a reading-room for the gardeners and people employed on the establishment. This reading-room is furnished with an excellent library of miscellaneous science and literature, and it also contains cupboards for the men to hang their working clothes and keep their food. Here every morning at half-past seven, wet or dry, does Mr. Hanbury meet all his people, and ask for God's blessing and protection throughout the day; and were our readers to see the place, they would indeed say that His blessing did attend upon it and its benevolent owner.

One of the most striking features in the management of the grounds is the almost total absence of weeds. A gentleman visiting the gardens one day said to Mr. Hill, the devoted gardener, whose pride is in his place, "I have many plants in my garden which I do not find here." Mr. Hill thought his collection of plants was as nearly complete as any to be found in most gardens, and on inquiring with a look of surprise what they could be, the visitor answered, "Weeds."

WILLIAMS'S IXORA—I. WILLIAMSII.

Of all hardwooded flowering stove plants which hold a place in our collections, the palm must, we think, be given to the species of the genus Ixora. There are over a dozen species and varieties in cultivation, not one of which is unworthy of all the care and skill the grower can bestow. Fine as all are, there is one, I. Williamsii, which stands out from its fellows

as prominently as did the small specimen of it exhibited at the late Show in the Rotundo, by Mr. Bowen, of the Chief Secretary's gardens, from the numerous other new plants competing with it on that occasion. Anyone looking at the small plant then exhibited, and at the immense trusses or heads of rich reddish salmon-coloured flowers which it bore, could not fail to see that it is a free-growing plant and a profuse bloomer, qualities highly appreciated by every plant-grower. In fact, it is just the subject the latter would like to take in hand to fashion into a grand and telling specimen. What a picture of beauty would a plant of I. Williamsii be if grown and flowered in the style of the fine specimen of the Ixora coccinea exhibited at South Kensington on the 6th inst. by Mr. Baines, gardener to H. Micholls, Esq., Southgate. Mr. Micholls's plant was 4 feet high, 3 feet through, and laden with a profusion of heads of bloom, many of them 6 inches through. That it does not take long in skilled hands to make such a specimen as this may be gathered from Mr. Baines's statement, that it was only two years and nine months since his splendid plant was inserted as a cutting.

Short as this time may appear in which to produce a specimen such as his, the time is far shorter in which from the insertion of the cutting one may have smaller, but not less handsome and equally profusely flowered specimens. In fact, plants most useful for decorative purposes may be had like the small plant exhibited at the Rotundo, little more than 6 inches high, and carrying trusses of bloom Hydrangea-like in size, and yet be little more than a few months out of the cutting pot. Ixora Williamsii is a hybrid variety sent out last year by Mr. Williams, of the Paradise Nursery, Holloway. It is decidedly about the finest thing of its kind in cultivation, and we hope ere long to see it brought out here as fine, if not finer, than the sensational I. coccinea shown at South Kensington on Wednesday week. We know one or two growers with whom the Ixora is a speciality, and with whom we have seen plants little, if at all, inferior to Mr. Baines's. If they will take our present plant in hand and grow it as successfully as they do I. coccinea, they will have something to be still more proud of, and worthy of the highest admiration. Cuttings of this and other Ixoras strike freely in bottom heat. When rooted, pot them off and keep close and shaded for a few days, till they lay hold of the soil. When they are established, pinch out the top, with a view of getting shoots from the base to form the foundation of a handsome bushy specimen. These primary shoots when sufficiently long, but while yet flexible, should be drawn gently and pegged down at right angles to the main stem, and these again be pinched in their turn. Place the plants on a shelf in the stove where they will be well up to the light. The after-treatment is simple enough, and consists of attention to watering, syringing, thorough cleanliness, and pinching the shoots, so as to give fulness and form to the plant. They will grow well in soil composed of two parts fibry loam and one part silver sand and charcoal, and during the growing season they will enjoy and benefit much from an occasional dose of clear liquid manure.—(*Irish Farmers' Gazette.*)

WORK FOR THE WEEK.

KITCHEN GARDEN.

The few hours' rain we have had did invaluable service in this department; crops that but a few days ago were languishing owing to want of moisture, are refreshed, and have an appearance which, as contrasted with that which they have borne for some time, is quite delightful. Never was the advantage of deep cultivation more apparent than during the late hot dry weather; crops growing on ground that had been well trenched and pulverised last winter and spring, have advanced with a rapidity and vigour quite foreign to those that are in ground which has only had a single-spit digging. The reasons for this are obvious. In the first place, the roots of the plants penetrate to a greater depth in the soil with ease; and in the second, the quantity of air in the soil, coupled with the pulverisation thereof, prevents rapid evaporation. Deep culture, drainage, and proper application of manure, and a thorough destruction of all weeds, are the grand secrets of cultivation, whether for the farm or the garden, for wet weather or dry. I take it for granted that all hands have been at work making plantations of *Brussels Sprouts, Buda Kale, Scotch Kale, Savoys*, and succession crops of *Cauliflower* and *Cabbage*, as well as *Lettuce, Endive, Leeks*, and the principal crops of winter *Celery*. Thin all crops such as *Carrots* and *Parsnips*: during the late dry weather it has not been practicable to do this in some soils. Nail *Tomatoes* that are planted near the walls, and stop their shoots where they are growing strong.

FRUIT GARDEN.

Attend to the previous directions in regard to thinning and stopping the young shoots of all trained fruit trees, and now make the final thinning of Peach trees and Nectarines, of course leaving the heaviest crop on the most vigorous trees and strongest branches. As a general rule, no two fruits should be left together. Plums of the large kinds, as well as the finer sorts of Pears, should also be thinned if the crop is too heavy. Young Peach and Apricot trees when making overvigorous leaders should have the points of the branches shortened, to encourage them to make other shoots less vigorous and of a fruitful character; this will obviate the necessity of shortening-back at the winter pruning. Strawberries will require attention. Layer runners intended for pot culture early, as well as those required for making new plantations. All spare runners may be cut away, and keep the plants free from weeds. Thin and stop shoots of Figs as soon as they have made a growth of about 6 inches, and remove all useless growth from Vines.

FLOWER GARDEN.

Attend to staking in due time. Peg down the early Verbenas and Petunias in due course. Patches of Musk as edgings should have the tops cut off, otherwise it grows wild. Reduce occasionally some of the blossoms in the bud state on some of the very free-flowering Perpetual Roses; it will cause them to keep longer in bloom. Let gross shoots on fancy Roses be pinched when a few eyes long, after the manner of fruit trees. Pipings of that favourite and sweet-scented flower the Pink may now be struck, and the blooms ought to be shaded; the secondary ones do not usually flower so large as the first; but this is compensated for in a great measure by the correctness of the lacing. The pointals, or horns, should now be fertilised. With a very small pair of tweezers extract the anthers containing the farina, which will be found lower down amongst the petals than the pointals, which are feathery-looking appendages to the seed-vessels; to these the farina must be carefully applied, choosing a warm sunny day for the operation. Continue to take-up Tulip bulbs, and dry them in an airy place; do not remove any offsets, it is best to allow them to remain attached to the parent bulb till all are dry. The major part of the blooms of Ranunculuses will now be past their best; as the grass withers they should be taken up, for no root is more easily excited than this, and should they again emit fibres their loss is imminent. It will, therefore, be advisable to keep off all heavy rains. Disbud Carnations and Picotees as they become large enough, and liquid manure may occasionally be applied, choosing wet or damp weather when it is given to them. Keep the pots free from weeds, and a slight top-dressing of rich vegetable soil will be found highly beneficial. Carefully attend to Dahlias as they grow, and by no means neglect tying-up the main shoots to the stake, as they are easily blown over and the plant ruined for the season. Auriculas and Polyanthuses will require no further attention just now than keeping them free both from weeds and aphides, watering as they have occasion.

GREENHOUSE AND CONSERVATORY.

Many of the showy specimens of superior stove plants should now be removed to these structures at this period, provided they are coming into blossom. The large Clerodendrons, Ixoras, Stephanotis, Pergularias, Gardenias, Plumbagos, Liliums, Jasminums, Erythrinas, &c., are of this class. These when highly cultivated begin at this season to press on their weaker neighbours, and their beauty will, moreover, be longer preserved if they are slightly retarded. A greater depth of colour also will be produced under a moderate temperature. Seize every opportunity of sprinkling every available surface three times a-day in bright weather. This will supersede the necessity of syringing. Look well to the training of climbers on trellises, whether in pots or out, and frequently stop the tops of growing young stock. As has been previously observed, see that sickly or badly-rooted specimens, if any, are kept free from red spider; also that young stock are not allowed to suffer from want of pot room. During bright weather attend carefully to watering, giving weak liquid manure to all plants in free growth that are likely to be benefited by it. Such stove plants as may have been removed to this house while in bloom should be replaced in heat as soon as their beauty is over, in order to permit their young wood to become ripened before short days set in. The time is now arrived when many Heaths and New Holland plants require more pot room. Potting should be

performed with particular care, as previously directed, and suitable places should be chosen for them to stand comfortably, so as to well-establish themselves again both at the roots and in the branches. Watch their growth daily, stopping, watering, syringing, and shading them; there will then be but little reason to fear that the labour thus well bestowed will be unrewarded in securing healthy plants with abundance of bloom for the succeeding year.

STOVE.

Many of the basket Orchids will soon be protruding their roots through the moss or soil, and a little additional fibrous peat or moss should be added in due time. When dull weather prevails, lay by the syringe for a day or two, and increase both the amount of atmospheric moisture and of air. Keep the foliage clear of insects. Pot Achimenes and Gloxinias for late flowering, and bring forward those showing bloom.

PITS AND FRAMES.

Amidst the turmoil of general gardening, a steady and untiring eye must be kept on propagation of all kinds during the summer months, for it must be remembered that it is a much less costly process at this period with regard to ordinary stock than at any other, provided wood in a proper state can be obtained. The back of a wall with a northern aspect can be made available at this time for striking many plants. Care must be taken, nevertheless, to provide against the drenching rains of a wet July by placing the cuttings whether in pots or in the open soil much above the ground level. Many of the Ericas will succeed in such a situation covered with glasses, together with a host of pot plants. Let cuttings of all soft-wooded and quick-growing plants be selected of a somewhat firm character, and those from hardwooded plants in a rather young state and beginning to turn somewhat brown at the base.—W. KEANE.

DOINGS OF THE LAST WEEK.

THE end of the week has given us a refreshing shower, and we feel the relief of the more temperate weather, after being something like roasted with several days of next-to-a-tropical temperature, all the more enervating after the cold and comparatively sunless season through which we have passed. Light clothing became the order of the day, and these glorious days of sun did much to empty the shelves of clothiers that had something light and thin to dispose of.

One thing in our limited observation rather surprised us, that many who wished for coolness seemed to imagine that coolness was chiefly identical with thinness and flimsiness of texture. They had not learned the simple fact that comfort as respects temperature greatly depends on colour, and that, therefore, in hot sunny weather the lighter and whiter-coloured our garments are the more comfortable we shall be. In fact, but for mere prejudice, light-coloured garments ought to be the most prevalent at all times, being the coolest in hot weather and the warmest in cold weather. "Oh, we must have some dark warm colours for winter," is nothing but a delusion. We are foolish enough when we dress-up to put on a darkish coat, because we have not the resolve to be singular in such a simple thing. Just think of a poor fellow with a black coat pretty well parboiled during the last week, and of the same black coat radiating as fast as possible every bit of heat from his body in a cold frosty day in December. For mere house-wearing black is all very well in winter, especially if we get near a fire, so that the black shall absorb more heat than it radiates.

Not ages ago we saw a man pretty well distracted from working in a small place with an open red-tiled roof, vigorously washing the roof with a thickish paint of soot and water, "as the darker the colour," said he, "the cooler it must be." Mr. Sun soon told him a different tale. His neighbour, who had been dipping into the COTTAGE GARDENER, covered his tiles with a thick sprinkling of limewash, and he felt in June as comfortable inside as if it had been the first days of joyous though shifty April.

Just generalise upon the one principle involved in these simple facts, and the mysteries of colour as respects temperature will stand revealed as an open letter. There are many cases in gardening where it is advisable that the heat from the sun should be absorbed by a dark surface. There are also many instances in which it is advisable that the heat should be reflected from a light surface. Thus, a black wall will be warmer in a bright sunny day than a light-coloured one, but it will also be colder at night from free radiation. A white wall will make the atmosphere near it warmer in a sunny day, but the wall, unless on the mere surface, will not get so warm, and consequently there will be less heat radiated at night. Where the highest temperature near a wall is required from heat from the sun we must use light colours; when we want the wall itself and the things fastened to it to be as hot as possible from sun heat, then we must use dark colours. As in the matter of clothing, so also as respects temperature in gardening, the best absorbers are the best radiators. For extremes of temperature, therefore, dark colours are best; for the most uniform temperatures light colours are best. In our climate, where during the day a high temperature not quite close to the object grown, but around it, is often a matter of importance, it would often be desirable to have white fences instead of dark brown or black ones, so that heat and light should not be so much absorbed as reflected and sent back into the surrounding air. In shading, damping, &c., in the few tropical days through which we have passed these matters are not unworthy of importance. One thing we have long felt—namely, the importance of a high temperature during the day rather than a more equal temperature at night, and a good deal of this might be wrought out by colouring could we apply ourselves to it.

Surface-stirring.—Among vegetables and flower-beds never was this work more needful, especially on heavy ground. The rains had battered our soil considerably, and the tropical sun had made the surface crack, even where there was plenty of moisture beneath. We managed by means of the Dutch hoe to get over the most of flower-beds and vegetable rows before the refreshing showers of the evening of the 21st, for as yet we have had nothing of the deluges that have occurred in other parts of the country. Partly, no doubt, too, owing to our elevated position we have not lost a square of glass from hail for thirty years. In the worst hailstorm we had we put the thorough drenching and pelting we had against the delightful sight of seeing 20 by 12-inch of 16-oz. glass rising and falling to the hailstones. Though an advocate for good glass, we have doubts if 21 and 25-oz. glass would have done so. They would not so easily have rebounded, and therefore would have been cracked and broken.

KITCHEN GARDEN.

As anticipated, Cauliflowers have come in only too fast, but were never more tender and rich, thanks to sewage before the rains. Though reluctantly, we must now begin and let the Asparagus go. The returns this season have been immense from plants grown on the quarters as rows. There is, however, an advantage in the bed system where there is plenty of room, as the alleys came in for other things. In watering Cauliflowers we did not forget our forwardest Peas; and as our Cauliflowers were raised on beds, after watering we mulched Cauliflowers and Peas and Beans liberally with short grass. If grass is kept short there is little chance of weeds, and such green mulching is very nourishing, as well as good for keeping out the force of the sun's rays. We will salt our Asparagus as soon as we can get some, and if we could get it on before the shoots get too strong, we would mulch with the very short grass from the machine. Many of us are even yet not aware of the nourishing properties of such material. We are just now passing through a transition state, otherwise we would have paid more attention to our rubbish and compost heaps, and for the first especially, one of the best and most fertilising components we have found to be layers of short grass sufficient to keep the whole heap in a state of fermentation, hot enough to destroy weeds and seeds of weeds, though the latter is not so easily done. Next to an unlimited supply of manure is a well-managed omnium gatherum of *a rubbish heap.* When we had little manure we found this most valuable for heavy continuous cropping. A little salt and lime added to the heap makes it more valuable; but the great thing is to keep all decaying vegetable matter covered over with a surfacing of earth, however thin. After all there is no such cheap deodoriser as dry earth, and every valuable gas that escapes in the processes of decomposition is absorbed by it. All the rage now is about draining and flushing, so as to get rid of the same manuring agents that we purchase at a high price. The time may soon come when the utilising of such materials may be the highest consideration; and then we do think that the dry-earth system, as to the treatment of the most valuable of all manures, will become more important than as to the hows and the whys of getting rid of it most easily. Nothing is more insalubrious than a putrefying mass close to a cottage door or window. Remove it to a fair distance and keep cover-

ing the same heap with earth, and instead of being a cause of fever and disease, it becomes a source of the richest fertility.

See previous articles as to planting-out vegetables. We have done but little just for want of room. Our last winter vegetables are two rows of Asparagus Kale that were planted late, and therefore came in late, but we can do without them now. Nothing but deep digging and plenty of manuring can sustain such *continuous cropping*. Strange that the holders of thousands of acres should be satisfied with one crop from a field, but expect ever so many from similar land just because it is called a garden. To our knowledge some of the best gardeners have left their places because it was impossible to get the requisite supply from a limited space called the kitchen garden, and that, too, though the surrounding land scarcely paid 30*s.* per acre. We care not who knows it, there is a perfect infatuation in such matters, and whatever may be said to gloss the matter over, we know full well that ultimately there will be little comfort, and what is more valuable, manly independence for the gardener, unless he can cram the kitchen.

FRUIT DEPARTMENT.

Apples—we are sorry to say that these so promising at one time are not so now. A good part of the young fruit of some kinds has fallen, and many leaves seem as if they had been scorched with a hot iron. Cherries thickly set are suffering in a similar way. Pears have stood the ordeal of the trying season best. Strawberries promise to be fine and abundant. Netted Cherries and Strawberries. Gave manure-waterings to houses, and in the hottest days spattered many houses, and especially orchard houses, with whitened water, throwing it over the glass with a syringe. As to shading and protecting, see what we have said as to colouring. The lighter coloured the material the better it is for both purposes.

ORNAMENTAL DEPARTMENT.

Pretty well finished bedding-out, and never had less trouble with it. It takes us long, as we like good-sized plants, and we find it necessary to stake and tie, though we use chiefly mere brushwood. Potted lots of things for succession. Gave manure water to Chrysanthemums, Fuchsias, Geraniums, &c., coming in for succession. Even Pelargoniums will stand some heat, with plenty of air on. All the Scarlet tribe will grow all the faster, and produce huger heads, if privileged with just a little bottom heat. Secured Pinks and Carnations; a twisted wire is the best support; will presently insert cuttings of Pinks. Where cut flowers are a consideration it is pleasant to be able to cut a huge basket of Pinks of different colours. We never cut the cuttings, we pull them out, but we have described the process. See what we said about Poinsettias, Euphorbias, Justicias, and Gesneras, for these matters must not be forgotten, or where should we be in winter?—R. F.

TO CORRESPONDENTS.

N.B.—Many questions must remain unanswered until next week.

GARDENERS' UNION (*J. D.*).—For your notes we are obliged, but you will see in our columns to-day the views of a first-class gardener on the same subject.

GARDENERS' MUTUAL SELF-SUPPORTING SOCIETY.—"*W. A., Gardener,*" writes to us that he enclosed stamps to the Hon. Sec., at Bristol, as directed in the advertisement, but has received no reply.

IRIS (*G. S.*).—It is certainly not I. bifora, and we think it is I. variegata. We have not seen the Figs.

APRICOT TREES IN POTS (*W. C. G.*).—There is no book devoted to the culture of these trees; but Mr. Pearson's little volume on "Orchard Houses" contains good directions on the subject. You can have it free by post if you enclose twenty penny postage stamps with your direction.

MISSING QUERY (*J. P. Rathdowney*).—We have no query left unanswered. What was the subject and signature?

DUCKS TRESPASSING (*Nottingham*).—You cannot legally kill them. You might sue their owner in the County Court for the damages; but the most desirable resource would be to put a low galvanised wire net along the bank facing the river. It would cost but little, and your neighbour would not be deprived of the pleasure and profit arising from duck-keeping.

SUMMER-PRUNING PEACH AND PEAR TREES (*W. B.*).—The Peach and Nectarine trees with shoots 2 feet long and planted last autumn, should not be interfered with, but trained-in their full length; we presume they are the leading shoots of the branches. These should be a foot apart; and when, from extension, they become of greater width another shoot should be trained-in, so that the main branches may be 1 foot apart throughout. These ought not to be interfered with, but if they are so strong as to produce laterals, the latter should have their points taken out at the first joint. Along the main branches a shoot at every foot in length of last year's wood should be trained-in, and these may be stopped when they have grown a foot long, and any laterals they may produce stopped at the first joint. All other shoots should be stopped within an inch of their origin, leaving two, or it may be three leaves, and the shoots they afterwards produce ought to be stopped at the first joint. The Pear trees should have the shoots or branches trained 1 foot apart, and their extremities should not be stopped, but the shoots intended to form branches and the shoots from the ends of the branches are to be trained-in at their full length. All the other shoots must be stopped at the third leaf, and subsequently to one leaf of the after-growths.

ARBUTUS REMOVING (*C. H.*).—A tree forty years old is too old to remove with a certainty of success. It would be much more satisfactory to plant a young healthy plant. If you are obliged to remove it we should give the tree a trial, taking it up carefully and during moist weather in September or early in October; but should you have no necessity, or can put up with it where it is, leave it alone.

VINES UNFRUITFUL (*C. A. M.*).—We think your bunches of Grapes turn into tendrils owing to the wet having made the border cold; hence from the little air given the bunches have curled-up from lack of support. The case might have been different had more air been given. It is not "shanking," which is an affection of the footstalk of the berries, but a result of the roots being in a cooler medium than the leaves, so that the former do not supply sap in sufficient quantity to meet the demands of the foliage, &c. Our "Vine Manual" will suit you. It may be had post free from our office for 2*s.* 8*d.*

IVY NOT CLINGING (*M. E. T.*).—We should attribute the non-clinging of the Ivy to its being against a south wall, which is probably too dry and hot in summer. We should nail-up the Ivy for a few years, and after it covers the wall so as to cause shade we have no doubt it will cling well, and probably if you were to sprinkle the wall occasionally, or every evening in dry weather, it would cling to the wall much better than at present. The leaves you send are those of the Finger-leaved Ivy (Hedera digitata). To stop the bleeding of large Elms and Oaks, we do not know of anything better than to brush the wounds over with the patent knotting used by painters.

CUCUMBER LEAVES (*S. A. M.*).—We cannot find any trace of insects on the leaf you sent us, and beyond a large blotch which has been caused by the sun's rays striking powerfully on the leaf whilst wet, we should say that it has been destroyed by the application of some insecticide in too powerful dose, or else destroyed by being kept too long without air, or until the sun has scorched the foliage. The leaf, however, was in too dry a state for us to form a decisive opinion.

CALCEOLARIAS DISEASED (*J. Bryar*).—The plant you sent us is diseased and unfortunately we do not know of a remedy. We should be glad if any of our correspondents could throw any light on this disease, which appears like a cankering of the stem, but from what cause it arises we have as yet no satisfactory information.

MELON PLANTS CANKERING (*J. A. P.*).—We should attribute the cause of the plants' dying off on the stems to the removal of the leaves, and the damp of the atmosphere producing decay, which is aggravated by the excess of sap your plants seem to have for leaf-growth. They will no doubt right themselves if you keep them dry and admit air freely, leaving a little at night. Dust the stems where infected with quicklime, rubbing it on until dry, and then leave off. Very fine charcoal is nearly as good, but we prefer the lime. The latter ought to be removed when it scales off, and more dusted on. The stems ought not to be wetted, and whatever leaves are removed should be taken off in bright weather. We agree with you respecting Marquis of Lorne and Blue Gown Cucumbers; both have long handles or necks, and so have all the very large long Cucumbers. And we further agree with your estimate of Telegraph. Have you tried Volunteer? We like it for its free-bearing, swelling, and size combined with good quality. Improved Sion House is also good. We think the spray you sent is that of the Fern-leaved Oak, Quercus Robur asplenifolia. It would succeed grafted on the Oak.

ROSES FOR LIGHT SOIL (*R. Haynes*).—Your soil is about the worst possible for Roses—sandy on chalk. It is no use attempting to grow standards on the Dog Rose stock; and we should advise you to get your Roses budded on the Manetti stock, plant them deep, and get them by that means established on their own roots. The soil should be well manured, and mulched also during the summer. The following twenty-four would answer most probably as well as any—John Hopper, Charles Lefebvre, Abel Grand, Victor Verdier, Duke of Edinburgh, Jules Margottin, Boule de Neige, Baroness Rothschild, Countess of Oxford, Senateur Vaisse, La Duchesse de Morny, Gloire de Dijon, Madame Clemence Joigneaux, Alfred Colomb, Berthe Baron, Maréchal Vaillant, Général Jacqueminot, Madame Caillat, Baronne de Maynard, Monsieur Noman, La France, Marquise de Castellane, Dr. Andry, Princess Mary of Cambridge. There are many others very good which would be too delicate. We do not know of any nurserymen or Rose-growers who supply buds. If you order from any of the leading nurserymen and state the nature of your soil they will supply suitable plants.

TRIAL OF MOWING MACHINES' (*Norfolk Parson*).—We never heard of an intended trial at Birmingham. If one takes place we shall report the results.

PEA HURDLES (*T. O. J.*).—We had them made at the price named at Winchester some years since.

HARDY AQUATICS (*D. H.*).—Any florist and nurseryman who advertises in our columns could obtain them for you.

RUE AND SWEET BASIL (*Questor*).—You ask, "Why will not Rue and Sweet Basil grow together?" We would ask, previously to considering whether this is a real example of the "antipathy of plants," Is it true that they will not grow together?

FRUIT TREES IN HEATED GREENHOUSE (*An Inexperienced Gardener*).—In such a case we would decidedly say keep your trees in pots in the house without moving them out of doors. We have Cherries now loaded to breaking their branches, and more useful for the dessert, that have stood in an unheated house for years. In your case in using fire heat in winter to keep out frost, we would rarely let fire heat be above 40°. That will keep your Camellias and bedding plants all right, and not unduly excite the fruit trees, as the later they bloom, unless you force them, the better. Keep your fruit trees too, dry-ish, not dry, in winter. Act as above, and we shall be astonished if the following year your trouble be not thinning fruit.

PLANTING VINES (*W. S.*).—By planting Vines in a growing state now you will gain considerably; the Vines will attain to the same size as they would if grown in pots till autumn, and very likely make canes twice as strong, besides having the roots firmly established in the border, by which they will be enabled to make a much better growth next year than the Vines that are planted when at rest, which are dependant on fresh growth for the formation of fresh roots. Plant at once good, young, growing, potted canes.

MAKING A VINERY OF A CUCUMBER HOUSE (*Fleetwood*).—We can hardly see how you can accomplish all you propose with strict reference to *Economy*. No doubt your present beds would suit admirably for Cucumbers. So they

would do for early Vines planted out in the beds, and care taken not to give too much bottom heat; but if these Vines are planted out you could use no very high temperature—no more than 45° from the time the Grapes were gathered to planting them again. If you used Vines in pots of course you could fruit them early, and then have Cucumbers in the same beds. If you can get a good sale for Cucumbers in winter and spring, we think the best-paying mode would be to have Cucumbers in winter, plant the Vines outside, with means of taking them outside when done fruiting, and keeping them secure in a narrow glass case until they broke freely, say in April. Then admit them into the house and cut out the Cucumbers as the Vines grew. By having Vines in pots you could have the Grapes first, and Cucumbers afterwards, but it is not everyone can make pots pay. Our "Vine Manual" would suit you. For thirty-two postage stamps you can have it by post from our office.

Cyclamen persicum Seed Sowing (*A Young Reader*).—It is now late to sow seed for plants to flower next spring, but you may still do so in a hot-bed, and the plants being grown on in heat, and through the winter they may attain strength sufficient for flowering late in the spring. We presume the small bulbs that form round an "Onion plant" are those of the Potato Onion, which should be planted early in March in good, rich, light soil, about 9 inches apart every way, covering them just up to the neck, or cover with soil, just leaving the nose out of the ground. They require to be taken up when the tops turn yellow, dried, and kept in a cool dry place safe from frost until planting time. We hope we have understood your question aright. We cannot name florists' varieties of Pelargoniums, they are too numerous.

Stopping Peach and Nectarine Trees (*Tyro*).—Your gardener's stopping of the trees in pots is right, but for those against the wall, as they have space for development, the shoots will not need to be stopped; but planted last autumn the shoots should be trained-in their full length, and at 1 foot distance apart, stopping any laterals they may make at the first leaves. You will find full instructions on the pruning of Peach and Nectarine trees, which require like treatment, in the "Modern Peach Pruner," by the Rev. T. Collings Bréhaut. It may be had from our office for 3*s.* 8*d.*

Pansies for Bedding (*F. J.*).—For bedding purposes you could not have anything better than the Cliveden—the dark blue, light blue, and yellow being very fine. We do not care much for white, they, as a rule, are not good. The Cauliflower and Cabbage plants you had in spring, and which have not yet headed, we should attribute to the cold we have had, and probably they are a late kind. You have only to exercise a little patience, and we think, though late, you will have ample reward in larger heads, for, as a rule, they are proportionate to the leaves. It may, however, be that they are of a bad stock, but another month will tell.

Espaliers Cutting Over (*Mrs. C.*).—We would cut them over at once, at 9 inches above the upper pair of branches. We believe most of them will start into growth this season.

Names of Plants (*W. W.*).—We cannot name the varieties of Coleus; they are a legion, and too nearly alike. (*T. M., Jersey*).—We believe it to be Pittosporum undulatum, but cannot be sure unless we saw its flowers as well. (*Flora*).—Francoa appendiculata, Sowthistle-leaved Francoa. Native of moist places on the hills of Chili. The Fern is too young for identification. (*Athenice*).—1, Malva sylvestris; 2, Lotus corniculatus; 3, Helianthemum vulgare; 4, Euphorbia amygdaloides; 5, Trifolium procumbens; 6, Armeria maritima; 7, Centranthus ruber; 8, Geranium Robertianum; 9, Vicia sativa; 10, Stellaria Holostea; 11, Anthyllis vulneraria; 12, Achillea Millefolium. (*H. S.*).—Coronilla glauca. (*J. Coles*).—We could not venture to name plants from seeds only, and all we can say of yours is that they are from leguminous plants.

POULTRY, BEE, AND PIGEON CHRONICLE.

TO OUR READERS.

The extraordinary length of the Reports compels us to omit many interesting communications, for which we will make room next week.

BIRMINGHAM POULTRY SHOW.

This opened on the 25th inst. The entries were numerous, especially those of Pigeons. We shall give details next week.

Dorkings (Coloured, except Silver-Grey).—*Cock.*—1, L. Patton. 2, J. W. Will. 3, R. W. Richardson. *hc*, D. Gellatly; J. Chisman; E. Rice. *c*, R. D. Holt. *Hen.*—1 and 2, Mrs. F. S. Arkwright. 3, L. Patton. *hc*, J. S. Gleesall; R. W. Beachy; L. Patton; D. Gellatly. *c*, J. White.

Dorkings (Silver Grey).—*Cock.*—1, J. Horton, jun. 2, W. H. Denison. 3, W. Harvey. *hc*, O. E. Cresswell. *Hen.*—1, J. Horton, jun. 2, F. Cheesman. 3, O. E. Cresswell. *hc*, R. D. Holt; W. H. Denison.

Cochins (Cinnamon or Buff).—*Cock.*—1, Mrs. Allsopp. 2, H. Lloyd, jun. 3, H. Lacy. 4, W. A. Taylor. *hc*, H. Lloyd, jun.; J. W. Taylor. *Hen.*—1 and 3, H. Lacy. 2, H. Lloyd, jun.; J. W. Will. 4, H. Tomlinson. *hc*, W. P. Ryland (2) A. Bamford (2); W. A. Taylor.

Cochins (Partridge).—*Cock.*—1, C. W. Brierley. 2, W. A. Taylor. 3, Mrs. Allsopp. 4, T. W. Anns. *Hen.*—1 and 2, W. A. Taylor. 3, T. Stretch. 4, E. Tudman. *hc*, C. W. Brierley.

Cochins (White, and any other colour).—*Cock.*—1, Mrs. A. Williamson. 2, W. A. Taylor. 3, J. H. Nicholls. *hc*, J. Railton; R. S. S. Woodgate; G. Shrimpton. *c*, Whitehead and Beachy. *Hen.*—1, J. Railton. 2, R. S. S. Woodgate. 3, F. Brewer. *hc*, F. Wilton; J. Railton; Mrs. A. Williamson; R. S. S. Woodgate; E. Fearon; J. K. Fowler. *c*, R. Chase (2).

Brahma (Dark).—*Cock.*—1 and 2, H. Lacy. 3, T. F. Ansdell. *hc*, Rev. J. Richardson; B. F. Parrott; R. B. Wood; J. Watts; J. H. Nicholls. *c*, Lady Gwydyr; L. Wright. *Hen.*—1, J. Mitchell. 2, H. B. Morrell. 3, T. F. Ansdell. *hc*, H. B. Morrell; T. F. Ansdell; E. Pritchard; Mrs. F. S. Arkwright; H. Lacy; C. Taylor; J. Watts. *c*, R. B. Wood; H. Yardley.

Brahmas (Light).—*Cock.*—1, Mrs. A. Williamson. 2, W. T. Storer. 3, J. F. Rodbard. 4, M. Leno. *Hen.*—1, T. A. Dean. 2 and *hc*, Mrs. A. Williamson. 3, J. R. Rodbard. 4, S. Sambrooke.

Spanish.—*Cock.*—1, J. Leeming. 2, Nicholls Brothers. 3, J. Walker. *hc*, E. Jackson; Mrs. Allsopp; J. H. Wilson. *c*, E. Jones. *Hen.*—1, Cup, and 3, J. Sillitoe. 2, C. W. Brierley. *vhc*, E. Jones. *hc*, R. Wright; W. Prosser; J. Walker; J. Leeming; R. Smith, jun.; H. Brown; Mrs. Allsopp; Miss E. Browne. *c*, E. Jones; W. Jaggs; G. Hurst.

Game (Black-breasted and other Reds).—*Cock.*—1 and Cup, G. F. Ward. 2, J. Fletcher. 3, J. Wood. *hc*, E. Bell; R. Ashley; C. W. Brierley; Rev. G. S. Cruwys. *Hen.*—1, T. Whitaker. 2 and 3, S. Mathew. *hc*, R. Ashley; J. Tyler; W. E. Oakeley.

Game (Black and Brassy-winged).—*Cock.*—1, Cup, and 3, Capt. W. G. Webb. 2, F. Kendrick, jun. *Hen.*—1, 2, and 3, Capt. W. G. Webb.

Game (Any other variety).—*Cock.*—1 and Cup, C. W. Brierley. 2, H. M. Julian. 3, J. Fletcher. *hc*, A. T. Emery, jun.; T. Robson. *c*, Rev. G. S. Cruwys. *Hen.*—1, C. W. Brierley. 2, S. Mathew. 3, A. T. Emery, jun.

Hamburghs (Gold or Silver-spangled).—*Cock.*—1, J. Rollinson. 2, L. H. Ricketts. 3, Ashton & Booth. *hc*, J. Rollinson; H. Beldon; H. Pickles, jun. *c*, T. E. Jones. *Hens.*—1 and Cup, J. Rollinson. 2 and 3, H. Beldon. *hc*, E. T. Gardom; J. Rollinson. *c*, Chadderton & Scholes.

Hamburghs (Gold or Silver-pencilled).—*Cock.*—1, H. Beldon. 2, J. Rollinson. 3, H. Pickles, jun. *hc*, W. Speakman. *Hens.*—1, H. Pickles, jun. 2, F. Pittis. 3, W. Meanly. *hc*, L. H. Ricketts; H. Beldon; C. Bloodworth. *c*, S. Onley.

Hamburghs (Black).—1, Rev. W. Serjeantson. 2, T. Bush. 3, H. Hoyle. *hc*, H. Beldon. *c*, N. Marlor.

Polands.—*Cock.*—1 and 2, H. Beldon. 3, W. Harvey. *hc*, W. Fearnley; P. Unsworth. *Hen.*—1 and 2, H. Beldon. 3, S. W. Probert.

French.—*Cock.*—1 and 2, R. B. Wood (Creve-Cœur and Houdan). 3, Rev. N. J. Ridley (La Flèche). *hc*, T. E. Hawkin; J. K. Fowler. *Hen.*—1, R. B. Wood (Crève-Cœur). 2, J. Dewry (Houdan). 3, T. Hawken.

Malays.—1 and 3, Rev. A. G. Brooke. 2, T. Hollis.

Any other Distinct Variety.—*Cock.*—1 and Cup, Countess of Dartmouth (White Dorking). 2, Rev. G. S. Cruwys (White Minorca). 3, T. Moore (Andalusians. *hc*, J. Mitchell (White Dorking); Countess of Aylesford (Cuckoo Dorking); J. Watts (Sultan). *Hen.*—1 and Cup, Mrs. A. Clay (Cuckoo Dorking). 2, R. Wilkinson (White Minorca). 3, J. Watts (Sultan). *c*, R. S. S. Woodgate (Silky); Miss M. Fairhurst (White Dorking).

Game Bantams.—1, J. R. Robinson. 2 and 3, Wingfield & Andrews. *Cock.*—1, D. Hunter. 2, G. Hall. 3, W. Rogers. *hc*, W. F. Addie; J. R. Robinson. *c*, G. F. Ward; Ashley & Maitland.

Bantams (Gold or Silver-laced).—1 and 2, M. Leno. 3, S. A. Wyllie. *hc*, J. Watts.

Bantams (White, Clear-legged).—1, Rev. G. S. Cruwys. 2, Rev. F. Tearle. 3, W. Whiteley.

Bantams (Black, Clear-legged).—1, M. Ridgway. 2, R. H. Ashton. 3, H. Beldon. *c*, E. Cambridge.

Bantams (Any other variety).—1, Mrs. A. Woodcock (Japanese). 2, Rev. W. Serjeantson (Dark Japanese). 3, T. Davis (Speckled Feather-legged).

Bantams (Any variety except Game).—*Cocks.*—1, J. Watts (White-booted). 2, R. Pickles (Black). 3, H. B. Smith (Pekin). *hc*, M. Ridgway (Black); Lady F. Legge (Japanese); Rev. W. Serjeantson (Dark Japanese).

Pheasants.—1 and 2, M. Leno.

Ducks (White Aylesbury).—1, J. Hedges. 2 and 3, J. K. Fowler.

Ducks (Rouen).—1, J. K. Fowler. 2, L. H. Ricketts. 3, F. Cheesman.

Ducks (Any other variety).—1 and 4, H. B. Smith. 2 and 3, W. Binns. *hc*, W. Binns; Capt. C. F. Terry (Ruddy Shield Ducks); J. Watts (Mandarin); F. Pittis, jun. (Black East Indian). *c*, H. B. Smith (2); J. Watts (Carolina).

Geese.—1, J. K. Fowler. 2, J. C. Cooper. *hc*, J. Watts; J. K. Fowler.

Turkeys.—1, F. Lythall. 2, E. Kendrick, jun.

Selling Class.—1, H. Tomlinson (Buff Cochins). 2, W. R. Bull (Spanish). 3, T. Wakefield (Silver-spangled Polands). 4, H. Yardley. *hc*, Ashley and Maitland (Bantams); T. Wakefield (Silver-spangled Polands); H. Yardley; R. Cant (Black Spanish). *c*, H. B. Morrell (Dark Brahmas); H. Beldon; J. J. Waller (Dorkings); Lady Gwydyr.

Selling Class.—*Cocks.*—1, P. Unsworth (Golden-spangled Poland). 2, E. Tudman (Partridge). 3, Mrs. A. Woodcock (Buff Cochin). 4, Mrs. Cross (Creve-Cœur). *hc*, H. Lloyd, jun. (Buff); J. W. Will; J. Hedges (Partridge Cochin); T. W. L. Hind (Dark Brahma); Lady E. Legge (White Japanese); A. Bamford (Dockwing); J. K. Millner (White-crested Black Poland); F. Bennett (Crève-Cœur); J. J. Waller (Dorking); R. Smalley (White Cochin); E. T. Gardom (Golden-spangled Hamburgh); R. Beckerleg, jun. (Partridge Cochin) C. W. Brierley; W. Barratt (Black Crève); G. Hurst (Spanish). *c*, Ashton and Booth (Silver-spangled Hamburgh); H. Yardley.

Selling Class.—*Hens.*—1, J. Walker (Black Spanish). 2, C. Bloodworth (Buff Cochin). 3, E. Jackson (Spanish). 4, C. W. Brierley. *hc*, H. Beldon; W. Nottage (Spanish); J. F. Sillitoe (Spanish); A. Bamford (Buff Cochin); R. W. Beachey (Dorking); T. Bush (Black Hamburgh) (2); H. Brown (Spanish); D. Young (Black Hamburgh); J. K. Fowler; H. Wade (Hamburgh). *c*, H. Lloyd, jun. (Partridge Cochin); J. W. Will; T. W. L. Hind (Coloured Dorking); G. Hurst (Spanish); D. Young (Buff Cochin).

YOUNG BIRDS.

Dorkings, Cochins, Brahmas, and Spanish.—1 and Cup, Horace Lingwood (Dark Brahmas). 2, M. Egginton (Spanish). 3, Mrs. H. Somerville (Coloured Dorkings). *vhc*, Mrs. A. Woodcock (Buff Cochins). *hc*, F. Cheesman (Silver Grey Dorkings); Hon. Mrs. A. B. Hamilton (Dark Brahmas); F. L. Turner (Dark Brahmas); Mrs. H. Somerville (Coloured Dorkings); T. Holton (Black Spanish); E. Jackson (Spanish); A. Darby (Coloured Dorkings); Horace Lingwood (Partridge); Dr. Holmes (Dark Brahmas); T. A. Dean (Light Brahmas). *c*, Mrs. A. Wilcox (Cochins and Coloured Dorkings); Rev. A. K. Cornwall (Dorkings); J. Bloodworth (White Cochins); T. A. Dean (Light Brahmas).

Any other Variety.—1, S. Matthew (Game). 2, B. Heald (Houdans). 3, T. Moore (Andalusian). *hc*, B. Heald (Houdans); W. E. Oakley (Black Red); J. J. Malden (Crève-Cœurs); T. Moore (Andalusian); E. Winwood (Game). *c*, W. Dring (Houdans); R. Coney (Houdans); G. F. Ward (Game) (2); G. Carlisle. (Brown Red Game); H. Winn (Silver-spangled Hamburghs); E. Maun (Brown Red); J. K. Fowler.

PIGEONS.

Carriers (Black).—*Cocks.*—1, J. Hawley. 2, W. Minson. 3, W. R. Fulton *Hens.*—1, R. Fulton. 2, J. Hawley. 3, J. Stanley. *hc*, R. Fulton (2); E. Horner

Carriers (Dun).—*Cocks.*—1, C. E. Duckworth. 2, E. Horner. 3, W. Siddons, sen. *Hens.*—1, E. Horner. 2 and 3, R. Fulton.

Carriers (Blue or Silver).—*Cocks.*—1 and 3, C. E. Duckworth. 2, J. F. White. *Hens.*—1, C. E. Duckworth. 2, J. C. Ord. 3, W. Siddons, sen.

Young.—1, E. Horner. 2, W. Massey. 3, J. Stanley.

Pouters.—*Cocks.*—1, 2, and 3, R. Fulton. *Hens.*—Cup, J. Hawley. 2, E. Horner. 3, Fulton.

Fantails (White).—Cup, T. Rule. 2, W. H. Tomlinson. 3, A. A. Vander meersch.

Fantails (Any other colour).—1 and 2, H. Yardley. 3, E. Horner.

Barbs (Black or Dun).—Cup, J. B. Buckley. 2, R. Fulton. 3, T. Waddington.

Barbs (Any other colour).—1, H. Yardley. 2, — Justice. 3, J. Hawley.

Tumblers (Almond).—Cup, E. Horner. 2, T. Waddington. 3, R. Fulton.

Tumblers (Short-faced or any other variety).—1, H. Adams. 2 and 3, R. Fulton. *hc*, S. Stephens, jun.; J. Ford; W. Choyce; J. Hawley.

Tumblers (Muff-legged, Mottle, Rosewing, or Redbreast).—*Hens.*—1 and 3, J. Massey. 2, J. Yardley.

Tumblers (Muff-legged or Saddle).—1, E. Pittaway. 2, G. White. 3, J. F White.

Tumblers (Muff-legged and Badge).—1, E. Pittaway. 2, R. Taylor. 3, H. Yardley. *hc*, R. Taylor; E. Pittaway.

Tumblers (Muff-legged and any other variety).—1 and 2, R. G. Teebay. 3 and *hc*, J. Massey.

Tumblers (Clear-legged, and any variety).—1, W. Harvey. 2 and 3, R. Fulton.

Jacobins.—1, J. Hawley. 2 and 3, R. Fulton.

Turbits.—Cup, L. H. Ricketts. 2, W. Banks. 3, R. Fulton. *hc*, A. A. Vandermeersch.

Owls (English).—Cup, R. Mangnall. 2, J. W. Edge. 3, P. H. Jones. *hc*, R. and J. Anderson; G. H. Gregory; J. W. Edge; T. Waddington; F. W. Zarhorst J. Watts; S. A. Cooper; J. Hawley. *c*, G. H. Gregory.

Owls (Foreign).—1, R. Wilson. 2, E. Horner. 3, J. Stanley. *hc*, J. Bowes J. Watts; A. A. Vandermeersch; J. Hawley. *c*, J. Hawley.

Trumpeters.—Cup, P. H. Jones. 2, T. Rule.

NUNS.—1, Rev. A. G. Brooke. 2, W. Croft. 3, A. A. Vandermeersch. *hc*, Rev. A. G. Brooke; J. B. Bowdon; I. Jackson; T. Imrie; E. Horner.
DRAGOONS (Blue).—Cup, R. Fulton. 2, H. Yardley. 3, J. Philpott. Whole class Highly Commended.
DRAGOONS (Red or Yellow).—1, R. Fulton. 2 and 3, F. Graham.
DRAGOONS (Any other colour).—1, F. Graham. 2, C. E. Duckworth. 3, H. Allsopp. Whole class Highly Commended.
YOUNG.—1, F. Graham. 2, W. H. Mitchell. 3, T. Waddington. *hc*, H. Wade.
ANTWERPS (Blue).—1, C. Gamon. 2, H. Yardley. 3, W. Bourne. *hc*, W. H. Mitchell; J. W. Ludlow. *c*, T. Morris.
ANTWERPS (Dun).—1, R. P. Ryland. 2 and 3, H. Yardley. *vhc*, H. R. Wright. *hc*, H. H. Barrows; A. Justice; C. Gamon; S. A. Taylor. *c*, W. Bourne; G. F. Evans.
ANTWERPS (Any other colour).—1, 2, and 3, J. W. Ludlow. *hc*, F. Woodhouse H. P. Ryland; J. W. Ludlow. *c*, E. C. Stretch; W. Bourne.
ANTWERPS (Homing).—2, J. T. Galey. 3, D. Riddiough, jun. *hc*, J. T. Galey; W. Bourne.
SWALLOWS.—1, C. F. Herrieff. 2, H. Draycott. 3, W. Choyce.
MAGPIES.—1, J. Watts. 2, P. H. Jones. 3, E. Horner. *hc*, W. Kitchen. *c*, W. R. Tomlinson.
ARCHANGELS.—1 and 3, J. Bowes. 2, J. Thompson.
ANY OTHER VARIETY.—Cup and 2, W. Banks. 3, I. Jackson.
SELLING CLASS.—1, T. Chambers, jun. 2, C. Gamon. 3 and 4, J. Watts.
SELLING CLALS.—1, J. Watts. 2, H. Adams. 3, W. Choyce. 4, H. Yardlsy.

JUDGES.—*Poultry*: Messrs. Hewitt and Teebay. *Pigeons*: Messrs. Esquilant, Child, and Beardsmore.

OUR LETTER BOX.

CROSS BETWEEN TURKEY AND BRAHMA (*B. S. L.*).—We have never met with the cross before, but we have known it tried many years ago. It has succeeded abroad, and some of the cross-breds were to be seen at large in the Jardin d'Acclimatation at the Bois de Boulogne, the year before last.

KEEPING GEESE (*Tyro*).—Before you decide upon Toulouse Geese, you will do well to ascertain the assistance you can depend upon in your immediate neighbourhood in sitting. The Toulouse are vigorous layers, but they will not sit. Geese do not want a house to roost in, unless you fear foxes or thieves. They generally roost a great part of the night on the water. You must not endeavour to keep them in the same house as fowls. When they want to sit make some houses of sods against an old wall or outbuilding. The orchard would be enough for the three birds, and they have no business in the fields till they go with their young into the barley stubbles.

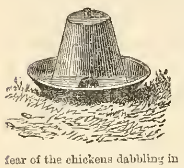
CHINESE PHEASANTS (*A. M. H.*).—For full instructions what to do with Pheasant poults when first hatched, we advise you to buy Baily's book, "Pheasants and Pheasantries." When first hatched they require bread and milk, egg, dough, curd, and sometimes a little cooked meat chopped fine. It would occupy more space than we can afford to answer the whole of your question.

CANKER IN A FOWL'S MOUTH (*H. M. T.*).—We know nothing better for canker in the mouth of a fowl than powdered camphor and sulphur ointment. The latter should be applied just before or just after they roost. We prefer going in and taking them off the perch, and applying the ointment freely, especially in the cauliflower cracks. The curing process goes on during the night, while if it is done in the day, feeding and drinking carry off the remedies. If powdered camphor is not at hand, two pieces each the size of a garden pea may be given whole.

KEEPING EGGS FOR SITTING (*W. E.*).—You should now have no lack of broody hens. In most poultry houses they are nuisances at this time of year. Your eggs will keep three weeks or a month and still be fit for sitting, but as it is unquestionable the fresher the egg the stronger the chick, we do not advise keeping. Buy, borrow, or exchange a hen with some neighbour, and the sooner the better—the season is getting on.

MANAGEMENT OF BRAHMAS (*A Sub.*).—You may wait two months longer before you separate them. Your hens laid again early, and the high feeding may have to do with it. More frequently, however, they are old birds that so soon become broody again. It is not particularly early for a hen to moult. We have many in that state. If she is losing feathering on her legs, we should think she picks her feathers herself. We suppose she is shut up, as her chickens are but a month old.

POULTRY FOUNTAIN (*T. O. J.*).—The simplest is thus made. The articles required are a flower-pot and saucer. Detach a piece from the rim of a flower-pot, about three-quarters of an inch deep, and I inch wide, plug the hole in the bottom of the pot with a piece of cork, fill the pot with water, placing the saucer on the top, then quickly turn the whole upside down, when the water will fill the space in the saucer around the pot. The hole in the rim of the pot must not be quite so deep as the height of the side of the saucer, and the plug must be air-tight—that is the secret of success. It is easily cleaned, simple, and cheap, and no fear of the chickens dabbling in it.



ANDALUSIAN CHICKENS.—"*St. Edmunds*" will always find Andalusian chickens vary in colour. I say this from my own knowledge of this variety during ten years. From eleven chickens the average has been seven blues, three piles, and two blacks. The colour of the first down of the chickens will be the same when full fledged.—H. LEWORTHY.

DEAD DUCKLING (*C. O. L.*).—It was in a state of offensive decomposition.

FOOD FOR YOUNG CANARIES (*R. K. C.*).—Feed with hard-boiled egg chopped very fine, and mixed with its own bulk of bread crumbs. As the birds grow add more crumbs, a little crushed hemp, or a portion of scalded rape. But what one hen will feed on, another in the next cage will starve on. It is a question of health on the part of the hen—that, and nothing else. Should she refuse to feed, it is a mercy to kill the young ones, and give her another start.—W. A. B.

GOLDFINCH AND CANARY NOT MATING (*H. M.*).—Your Goldfinch most likely had given his affections to one of his own kind when at liberty, refuses to listen to the seductive calls of the pretty Canary damsel who is imprisoned with him. There is no remedy but to separate the ill-assorted pair, and introduce another bird who may not be proof against the blandishments of the charmer. She evidently shows a very laudable desire to have a family, and it is a pity a suitable spouse should not be had for her. Birds take strange likes and dislikes, and their matrimonial quarrels are very frequent.—W. A. BLAKSTON.

DRONE SLAUGHTER (*T. Bees*).—The bees are killing the drones because the weather has been cold and wet so long. They despaired of better days, and like prudent farmers got rid of their supernumerary stock. Now the queen will recommence drone-breeding, although in less numbers.

DISTURBED BEES (*Walter E. Smith*).—We fear that your bees will continue to persecute you till the vindictive ones are dead, which will most likely happen in the course of the next month. Bees are very short-lived at this season of the year. It is getting full late for swarms now, so that we should advise you not to make a second out of your Nutt's collateral. Rather open the side box, and give a bell-glass too on the stock hive. Of course your bees may give you no choice. If they should swarm you must encourage them as much as you can by liberal feeding later on, or else return them to the hive after catching and destroying their queen.

INDUCING BEES TO LEAVE A GLASS SUPER (*Mrs. J. J.*).—After removing the super take it away without much jarring or unnecessary disturbance to a secluded room, where all can be darkened with the exception of a small part of open window. Tilt up or invert the super, so that the bees may come out towards the light. If they leave slowly, stand near with a feather, and brush off any that come outside. These will crawl or fly to the light, and return home. The presence of bee-bread will not make them more difficult to dislodge than that of mere honey, but brood in the super may. With very large glass supers we invert them on a table, and drum out the bees into a small straw hive, rapping on the table instead of the glass; but this is seldom necessary. If, notwithstanding your precautions and the darkened room, other bees show a disposition to rob the super, remove it to some other part of your premises, proceeding as before.

SECURING A SWARM FROM BEES IN A CHIMNEY (*Ignoramus*).—We do not think you will succeed in inducing a swarm to take possession of a hive fixed up in the way you describe. Possibly if you could procure a hive with empty combs of a stock that had perished in the winter the swarms might choose to make use of it. Your query came too late for reply in the next issue.

GOOD BOOK ON BEES (*Idem*).—We know of no cheap book which will give you more information on the natural history and physiology of bees than our own little manual which you have. "The Honey Bee," by Dr. Bevan, the second edition, which is, we fear, out of print; or "The Hive and Honey Bee," by L. L. Langstroth, would give you all the required information. The latter work could be obtained through Messrs. Neighbour, of Regent Street, and would amply repay the investment.

NUMBER OF DRONES IN A HIVE (*M. F. H.*).—We do not know of any reliable author on bees who much understands the number of drones which may be found in an ordinary stock. Langstroth says, "The number of drones in a hive is often very great, amounting not merely to hundreds, but sometimes to thousands." Dr. Bevan says, "There are the drones, or males, to the number of perhaps 1500 or 2000, according to the strength of the family." Mr. Taylor took from an empty side box into which the drones of a hive had retreated to avoid the persecution of the workers, "rather more than 2200, besides some few that had escaped." Mr. George Fox, of Kingsbridge, destroyed more than this last number from one stock. With the improved frame hives, drones can to a certain extent be kept under control by removing drone combs, and substituting empty worker combs.

DISPOSAL OF SURPLUS BEE PRODUCE (*E. H. R.*).—There are various Italian warehouses, and other establishments in London, which deal largely in surplus honey of prime quality in the comb, sent up in the supers in which it was stored. We cannot understand why you should object to dispose of honey in your immediate neighbourhood on the ground of interfering with the cottagers, any more than to the disposal of your surplus chickens or eggs, which, whether you send them to Leadenhall Market or elsewhere, must compete with the ordinary raisers of those commodities. A very large quantity of drained honey and of wax is imported annually into England. We have very considerable doubts as to the great profits which, according to some enthusiasts, are to be made from bees in this country.

FEEDING A GOAT (*A. Z.*).—The very coarsest green vegetables are what they prefer. Dry food will not do for them. They prefer the rankest weeds before grass. Two females and one male are best kept together. Good shelter is needed in summer as well as winter, for great heat is as injurious to them as is great cold.

METEOROLOGICAL OBSERVATIONS,

CAMDEN SQUARE, LONDON.

Lat. 51° 32′ 40″ N.; Long. 0° 8′ 0″ W.; Altitude 111 feet.

DATE.	A.M.					IN THE DAY.				
1872. June.	Barometer at 32° and Sea Level.	Hygrometer. Dry.	Hygrometer. Wet.	Direction of Wind.	Temp. of Soil at 1 ft.	Shade Temperature. Max.	Shade Temperature. Min	Radiation Temperature. In sun.	Radiation Temperature. On grass	Rain.
	Inches.	deg.	deg.		deg.	deg.	deg.	deg	deg.	In.
We. 19	29.814	71 7	64.2	S.	63.3	81.2	56.1	126 2	58 9	0.020
Th. 20	29.965	67.8	60.9	W.	63.8	76.8	55 2	123.9	57 6	—
Fri. 21	30.012	67 3	61.7	W.	63 9	75.2	53.2	115 8	51.1	—
Sat. 22	30 034	62.0	53 7	N.W.	63.0	72.2	51.1	1 3.9	50.2	—
Sun 23	30.116	65.0	56.6	S.W.	62.3	73 9	47.5	109 4	43.9	—
Mo. 24	29.829	70.2	61	S.	62 2	78 5	51.9	121 5	47.5	0.580
Tu. 25	29.639	65 5	60.8	S.E.	63.8	70.1	58.5	119.8	56 3	0.020
Means	29.916	67.0	60.0		63 2	75.4	53.4	12[illegible].1	51.5	0.620

REMARKS.

19th.—Beautiful morning, but storm-like soon after 11 A.M., and more or less so all day; slight shower at 7 P.M., and another at 8 P.M., fine after.
20th.—Fine morning though much cooler; and so continued all day.
21st.—Fine but rather thick in the morning; fair all day, but less bright and warm, and rather windy.
22nd.—Very fine morning but wind rather high; the day lovely, bright, and cool.
23rd.—Splendid morning; rather heavy and storm-like in afternoon.
24th.—Fine morning; getting storm-like between 4 and 5 P.M., and more and more so till 8.50 P.M., when vivid lightning commenced, and continued at intervals till 10.0 P.M., accompanied by thunder and very heavy rain. Between 9.22 P.M. and 9.45, 0.53 inch fell.
25th.—A rather dull day; looking very rain-like, but not raining till 7 P.M., and but little then.

A very similar week to the previous one, frequent distant storms, but only one near London. Temperature nearly the same as last week.—G. J. SYMONS

3 5185 00266 2755